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Service Manual

ORDER NO.
ARP2034

STEREO AMPLIFIER

A-656 MARK II

HEWZ, HE, HB

A-656 MARK II-S

HEWZ

- **Refer to the service manual ARP1817, A-656/HEZ type.**
- **This manual is applicable to the A-656 mark II /HEWZ, HE, HB and A-656 mark II -S/HEWZ types.**

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The A-656 mark II /HEWZ, HE, HB and A-656 mark II -S/HEWZ types are the same as the A-656/HEZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.					Remarks
		A-656/ HEZ type	A-656mark II /HEWZ type	A-656mark II /HE type	A-656mark II /HB type	A-656mark II -S/HEWZtype	
	REC OUT assembly	Non supply	Non supply	Non supply	Non supply	Non supply	
	INPUT SELECTOR assembly	AWZ2351	AWZ2351	AWZ2459	AWZ2459	AWZ2351	
	HEAD PHONE assembly	Non supply	Non supply	Non supply	Non supply	Non supply	
	POWER AMP assembly	AWZ2335	AWZ2335	AWZ2454	AWZ2454	AWZ2335	
	POWER SUPPLY assembly	AWZ2336	AWZ2336	AWZ2455	AWZ2455	AWZ2336	
	SPEAKER TERMINAL assembly	AWZ2337	AWZ2337	AWZ2456	AWZ2456	AWZ2337	
	PHONO AMP assembly	AWZ2338	AWZ2338	AWZ2457	AWZ2457	AWZ2338	
⚠	T1 Power transformer	ATS1210	ATS1287	ATS1287	ATS1287	ATS1287	
⚠	FU1 Fuse (T2.5A/250V)	AEK-403	AEK-403	AEK-403	AEK-512	AEK-403	
	C2 Ceramic capacitor	.....	CKDYB472K50	.....	.....	CKCYB472K50	
	C1 Ceramic capacitor	CKDYB472K50	CKDYB472K50	.....	.....	CKDYB472K50	
	C3	ACH1043	ACH1155	ACH1155	ACH1155	ACH1155	
	R1	RD1/4PM4R7J	RD1/4PM4R7J	.....	.....	RD1/4PM4R7J	
	R2	RD1/4PM220J	RD1/4PM220J	.....	.....	RD1/4PM220J	
⚠	AC Power cord	ADG1049	ADG1049	ADG1049	ADG1052	ADG1049	
	Front panel	ANB1295	ANB1378	ANB1378	ANB1378	ANB1379	
	Panel base	AMB1200	AMB1628	AMB1628	AMB1628	AMB1629	
	Rotary knob L	AAB1107	AAB1126	AAB1126	AAB1126	AAB1150	
	Rotary knob M	AAB1108	AAB1127	AAB1127	AAB1127	AAB1149	
	Rotary knob S	AAB1109	AAB1143	AAB1143	AAB1143	AAB1144	
	Push knob	AAD1536	AAD1536	AAD1536	AAD1536	AAD1538	
	Direct knob	AAD1560	AAD1560	AAD1560	AAD1560	AAD1562	
	Power knob	AAD1561	AAD1561	AAD1561	AAD1561	AAD1563	
	Bonnet case	ANE1075	ANE1075	ANE1075	ANE1075	ANE1076	
	Screw (BONNET)	FBT40P080FZK	FBT40P080FZK	FBT40P080FZK	FBT40P080FZK	FBT40P080FCR	
	Screw (EARTH)	ABA1047	ABA1047	.....	.....	ABA1047	

POWER AMP assembly (AWZ2454)

The POWER AMP assembly (AWZ2454) is the same as the POWER AMP assembly (AWZ2335) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2335	AWZ2454	
	L101–L104	.....	ATX1012	
	C105,C106	CKCYB122K50	CKCYB152K50	
	C109,C110	CMA080D500	CMA150J500	
	C111,C112	.....	CMA150J500	
	C141,C142	CCCSL121J50	.....	
	C155	CCCSL151J50	.....	
	C157,C158	CKCYB331K50	.....	
	R123,R124	RD1/4PM560J	RD1/4PM101J	
	R245,R246	RD1/4PM100J	.....	

POWER SUPPLY assembly (AWZ2455)

The POWER SUPPLY assembly (AWZ2455) is the same as the POWER SUPPLY assembly (AWZ2336) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2336	AWZ2455	
⚠	C615	CQMXA104J100	ACG1005	
	C625	CKCYB472K50	.....	

SPEAKER TERMINAL assembly (AWZ2456)

The SPEAKER TERMINAL assembly (AWZ2456) is the same as the SPEAKER TERMINAL assembly (AWZ2337) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2337	AWZ2456	
	C905–C908	CQMXA472J100	.....	
	C909,C910	CCDSL101K500	.....	
	R901,R902	RS1LMF101J	RS1LMF100J	
	R905,R906	.....	RS1PMF681J	
	SPEAKER TERMINAL	AKE1015	AKE1017	

Mark	Symbol & Description	Part No.					Remarks
		A-656/ HEZ type	A-656mark II /HEWZ type	A-656mark II /HE type	A-656mark II /HB type	A-656mark II -S/HEWZtype	
	Packing case	AHD1633	AHD1816	AHD1816	AHD1816	AHD1817	
	Operating instructions (German)	ARC1146	ARC1184	.....	.....	ARC1184	
	Operating instructions (English/German/French/Italian/ Swedish/Dutch/Spanish/ Portuguese)	.....	.....	ARE1148	.....	.....	
	Operating instructions (English)	.....	.....	.....	ARB1229	.....	

REC OUT assembly

The REC OUT assembly (HE,HB types) is the same as the REC OUT assembly (HEZ,HEWZ types) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HEWZ,HEZ types	HE,HB types	
	C803-C810	CKCYB331K50	.....	
	R803-R806	RD1/4PM182J	RD1/4PM222J	
	R807,R808	RD1/8PM182J	RD1/8PM222J	
	R809,R810	RD1/8PM221J	.....	

INPUT SELECTOR assembly (AWZ2459)

The INPUT SELECTOR assembly (AWZ2459) is the same as the INPUT SELECTOR assembly (AWZ2351) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2351	AWZ2459	
	C701-C710	CKCYB331K50	.....	

HEAD PHONE assembly

The HEAD PHONE assembly (HE,HB types) is the same as the HEAD PHONE assembly (HEZ,HEWZ types) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HEWZ,HEZ types	HE,HB types	
	C951,C952	CKCYB392K50	.....	

PHONO AMP assembly (AWZ2457)
The PHONO AMP assembly (AWZ2457) is the same as the PHONO AMP assembly (AWZ2338) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2338	AWZ2457	
	L501,L502 (270μH)	ATH1010	.....	
	L503,L504 (2.2μH)	LAU2R2M	.....	
	C505,C506	CCCSL221J50	CCCSL271J50	
	C523,C524	CCCSL390J50	.....	
	R505,R506	RD1/8PM272J	.....	

Line Voltage Selection

Line voltage can be changed with following steps.

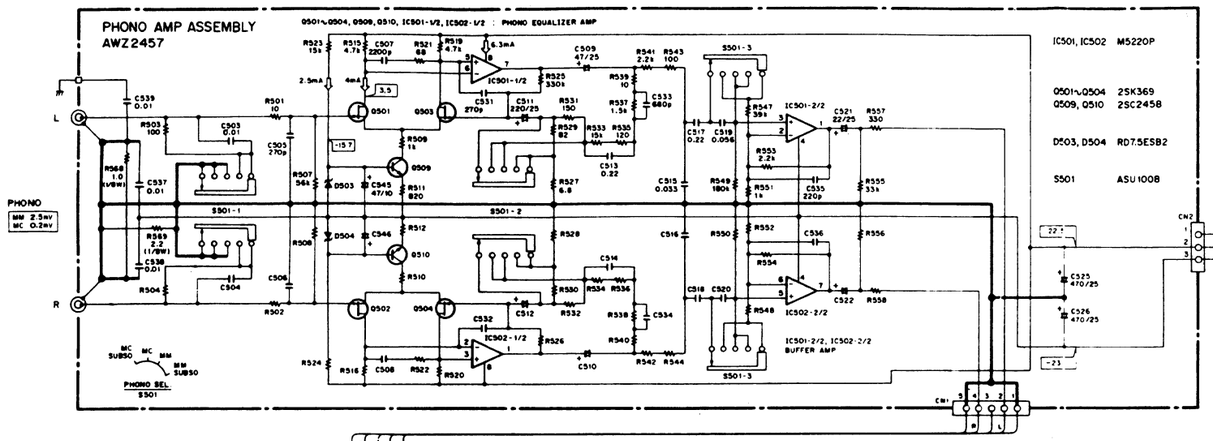
1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary pins.

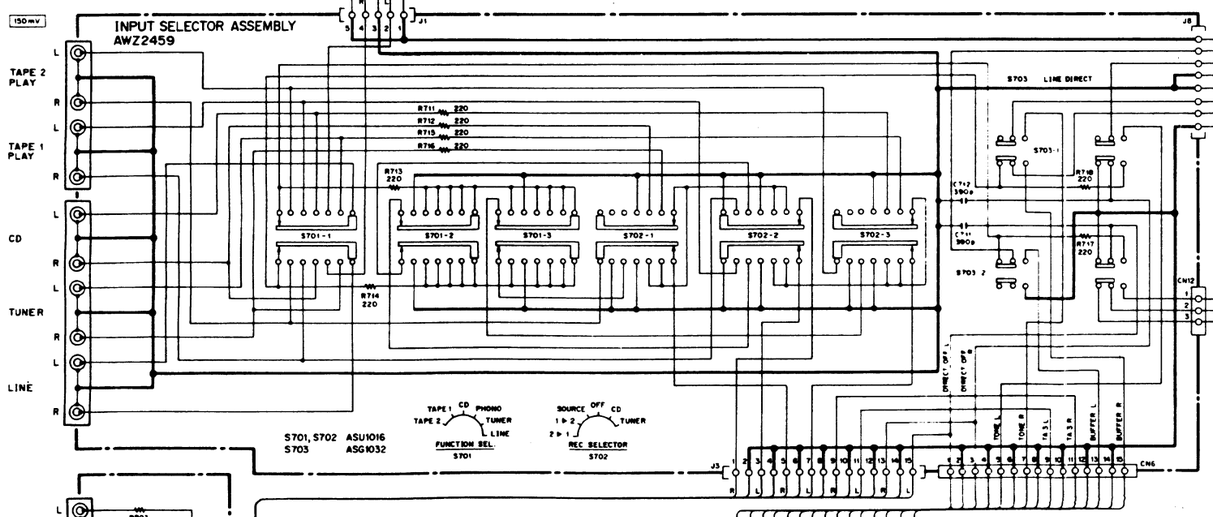
AC voltage	Power transformer Pin No.
220V	3
240V	5

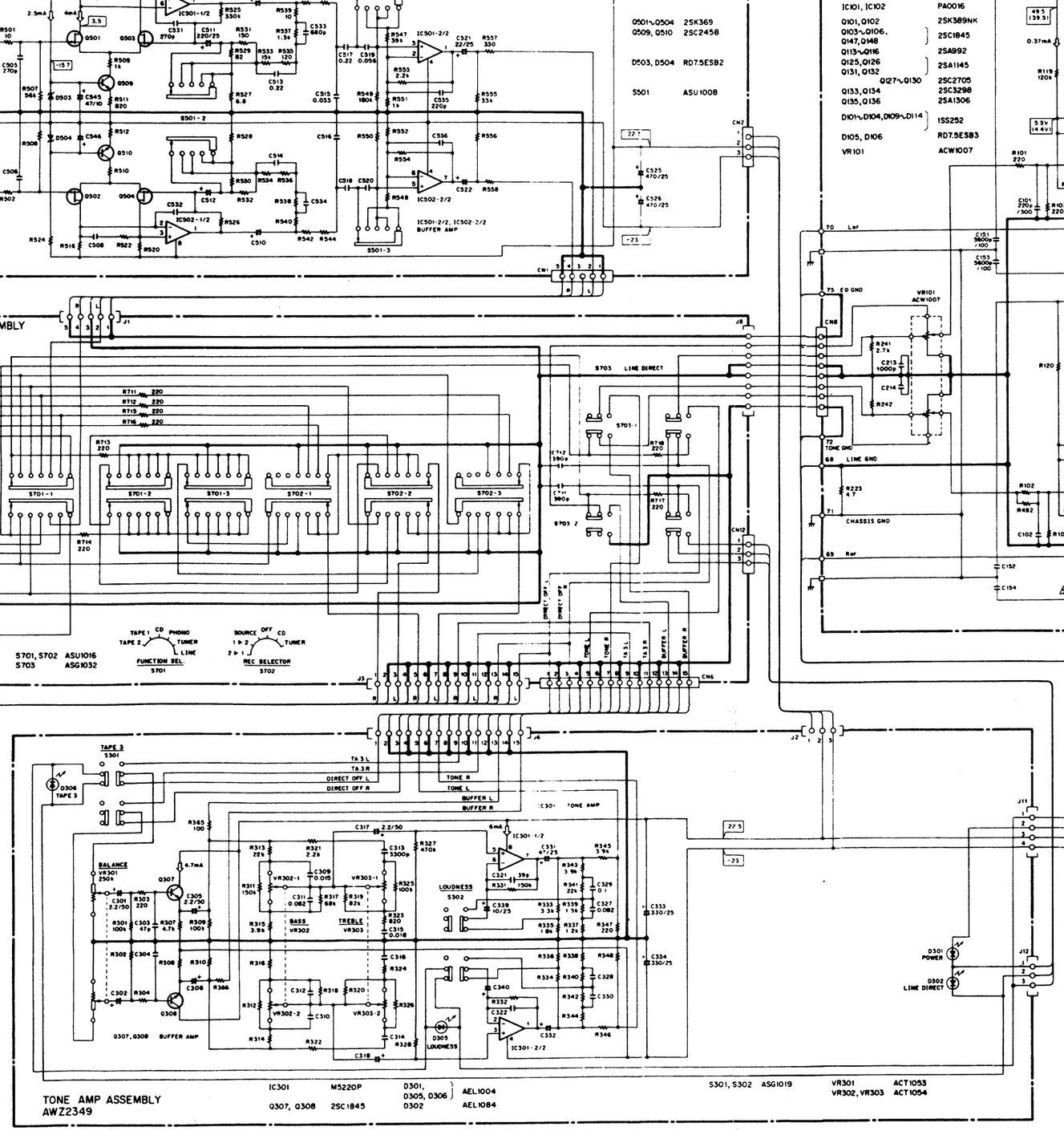
4. Stick the line voltage label on the rear panel.

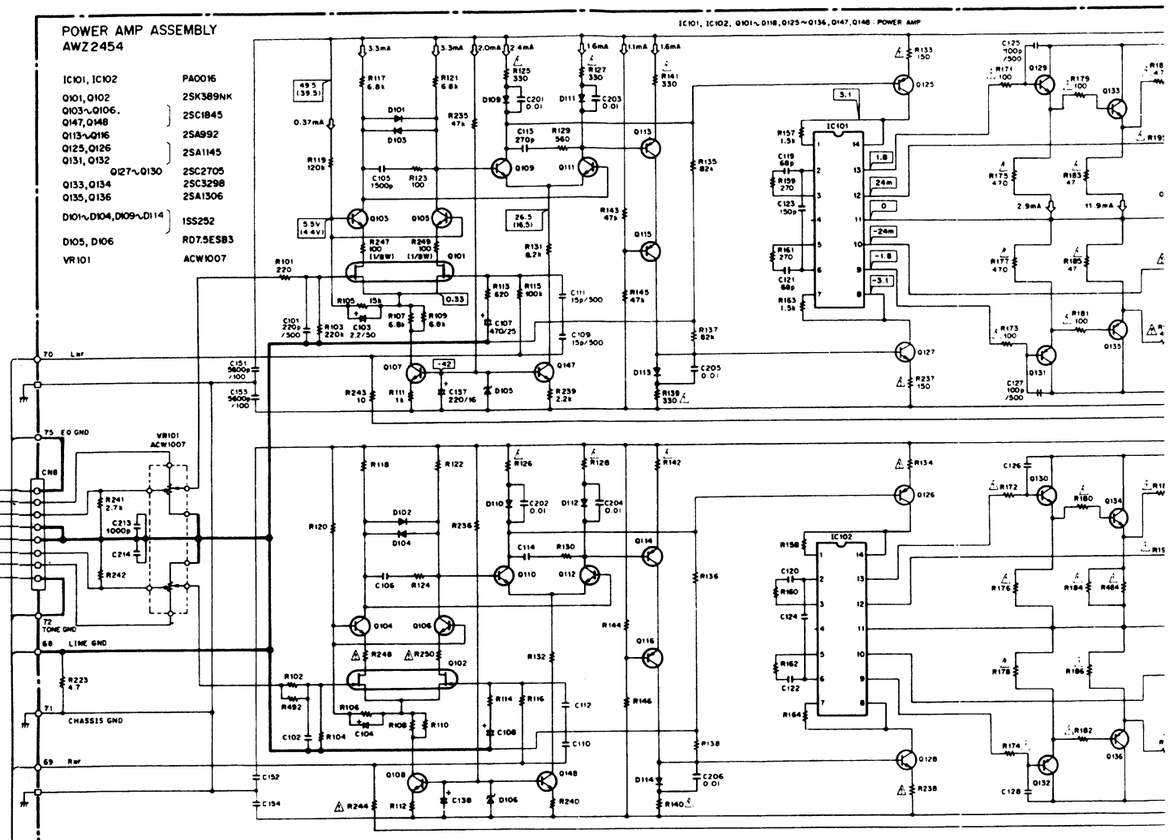
Part No.	Description
AAX−193	220V label
AAX−192	240V label

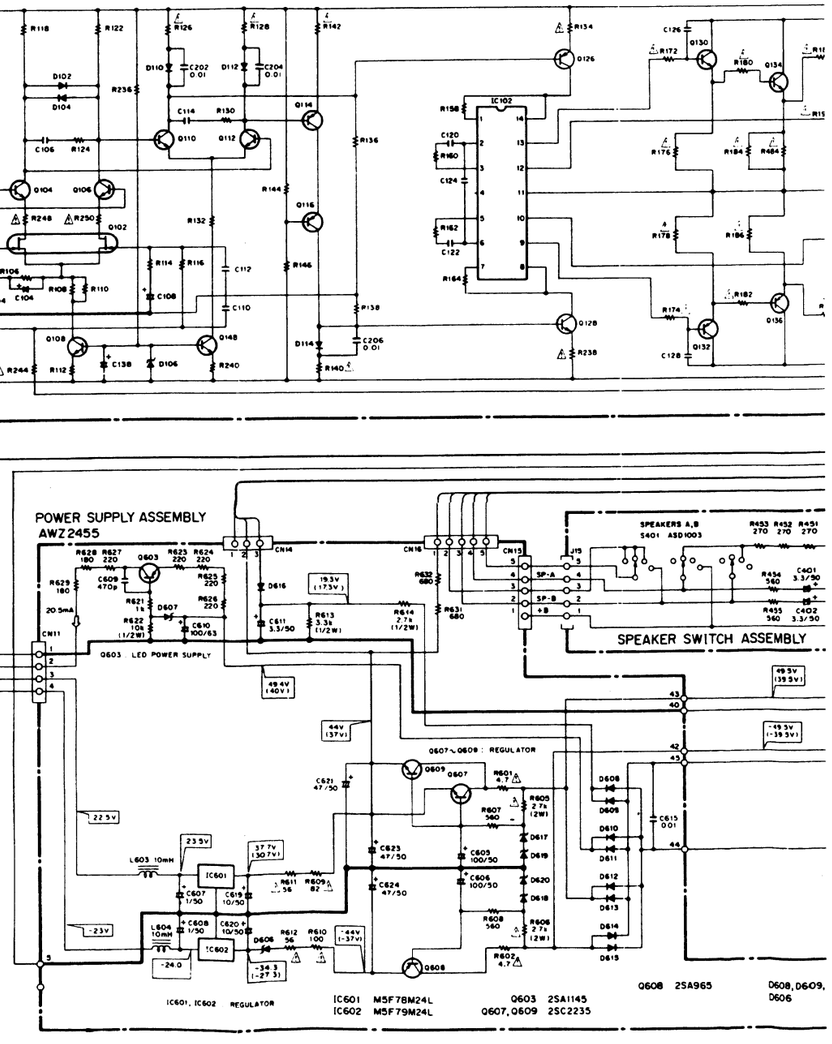
2. SCHEMATIC AND P.C.BOARDS DIAGRAM

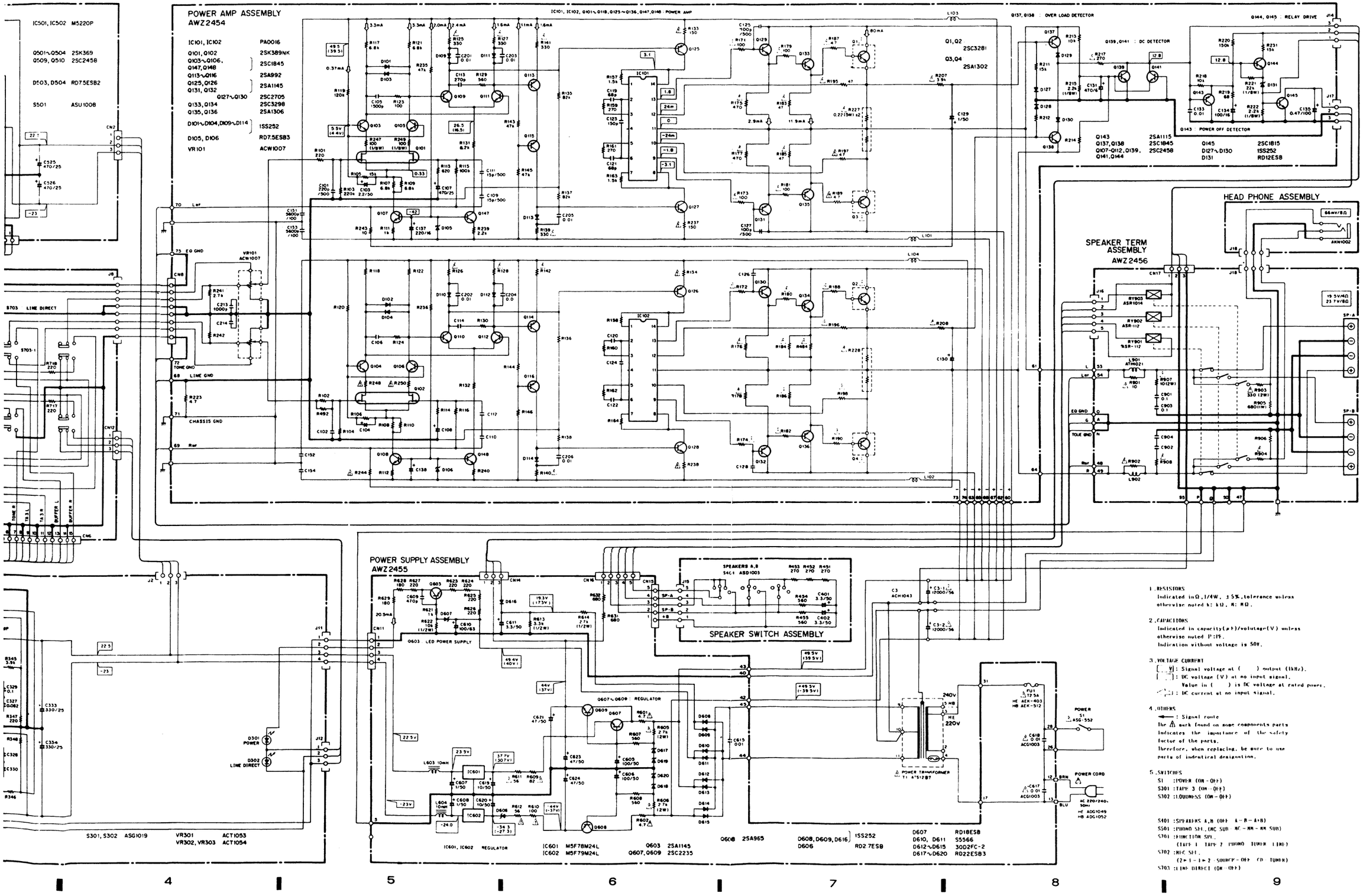


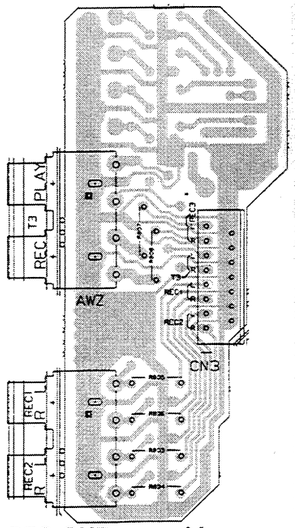




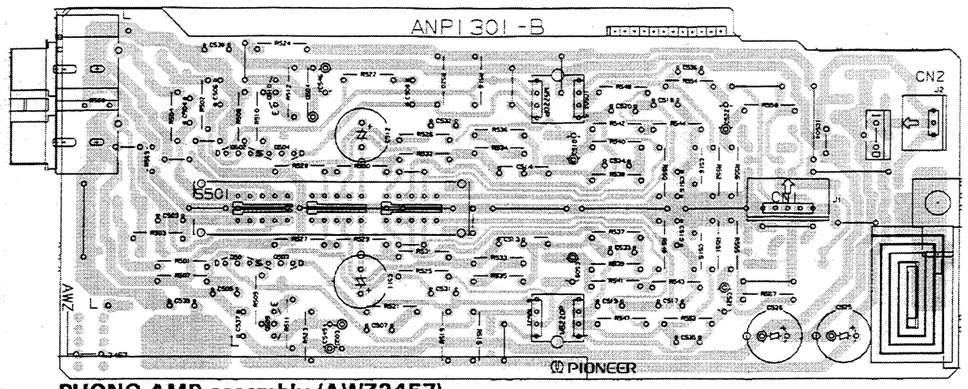




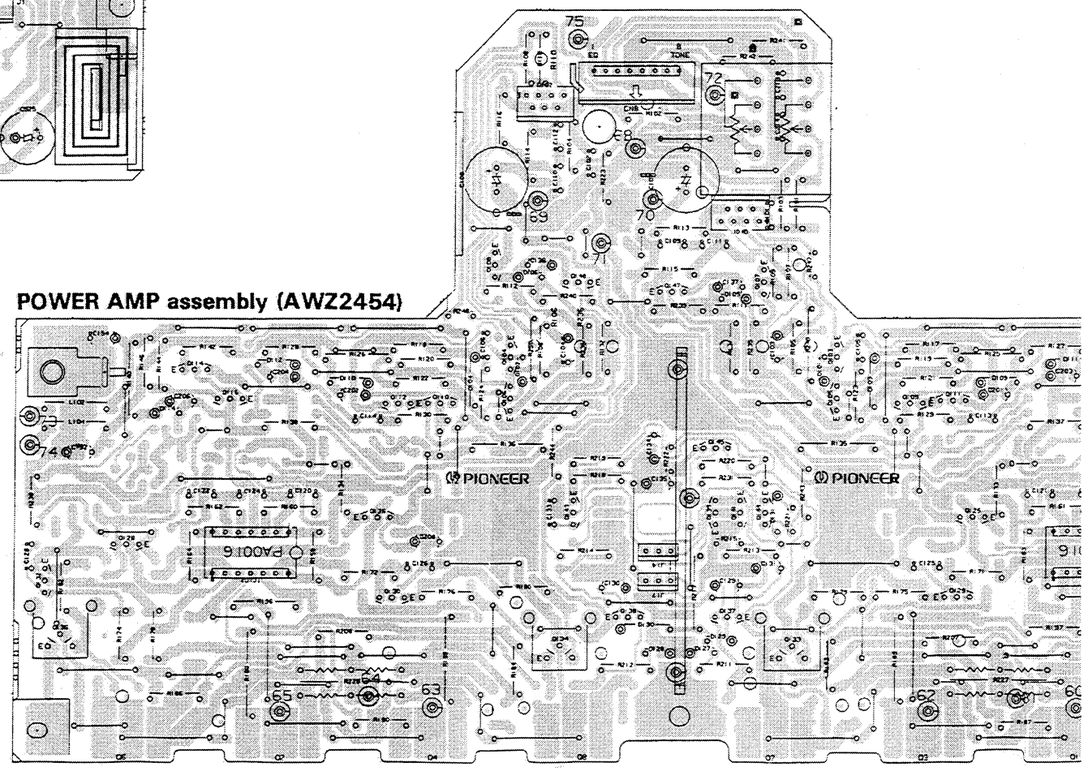

POWER AMP ASSEMBLY
AWZ2454
IC101, IC102 PA0016
Q101, Q102 2SK389NK
Q103~Q106, Q147, Q148 2SC1845
Q113~Q116 2SA992
Q125, Q126 2SA1145
Q131, Q132 2SA1306
Q127~Q130 2SC2705
Q133, Q134 2SC3298
Q135, Q136
D101~D104, D109~D114 1SS252
D105, D106 RD7.5ESB3
VR101 ACW1007
IC101, IC102, Q101~Q118, Q125~Q136, Q147, Q148 : POWER AMP
Q137, Q138 : OVER LOAD DETECTOR
Q139, Q141 : DC DETECTOR
Q144, Q145 : RELAY DRIVE
Q143 : POWER OFF DETECTOR
Q1, Q2 2SC3281
Q3, Q4 2SA1302
Q143 2SA1115
Q137, Q138 2SC1845
Q107~Q112, Q139, Q141, Q144 2SC2458
Q145 2SC1815
D127~D130 1SS252
D131 RD12ESB
IC501, IC502 M5220P
Q501~Q504 2SK369
Q509, Q510 2SC2458
D503, D504 RD7.5ESB2
S501 ASU1008
HEAD PHONE ASSEMBLY
SPEAKER TERM ASSEMBLY
AWZ2456
SPEAKER SWITCH ASSEMBLY
SPEAKERS A,B 54Ω ASD1003
POWER SUPPLY ASSEMBLY
AWZ2455
Q603 LED POWER SUPPLY
Q607~Q609 : REGULATOR
IC601, IC602 REGULATOR
IC601 M5F78M24L
IC602 M5F79M24L
Q603 2SA1145
Q607, Q609 2SC2235
Q608 2SA965
D608, D609, D616 1SS252
D606 RD2.7ESB
D607 RD18ESB
D610, D611 S5566
D612~D615 3002FC-2
D617~D620 RD22ESB3
S301, S302 ASG1019
VR301 ACT1053
VR302, VR303 ACT1054
S703 LINE DIRECT
POWER TRANSFORMER T1 47512BT
POWER S1 ASG-552
POWER CORD
AC 220/240V 50Hz
HE ADG1049
HB ADG1052
1. RESISTORS
Indicated in Ω, 1/4W, ±5%, tolerance unless otherwise noted k: kΩ, M: MΩ.
2. CAPACITORS
Indicated in capacity(μF)/voltage(V) unless otherwise noted P: PF.
Indication without voltage is 50V.
3. VOLTAGE CURRENT
[V]: Signal voltage at ( ) output (1kHz).
[V]: DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
[mA]: DC current at no input signal.
4. OTHERS
: Signal route
The ⚠ mark found on some components parts indicates the importance of the safety factor of the parts.
Therefore, when replacing, be sure to use parts of indentical designation.
5. SWITCHES
S1 : POWER (ON-OFF)
S301 : TAPE 3 (ON-OFF)
S302 : LOUDNESS (ON-OFF)
S401 : SPEAKERS A,B (OFF A-B A+B)
S501 : PHONO SEL. (MC SUB MC-MM MM SUB)
S701 : FUNCTION SEL. (TAPE 1 TAPE 2 PHONO TUNER LINE)
S702 : REC SEL. (2→1 1→2 SOURCE OFF CD TUNER)
S703 : LINE DIRECT (ON-OFF)



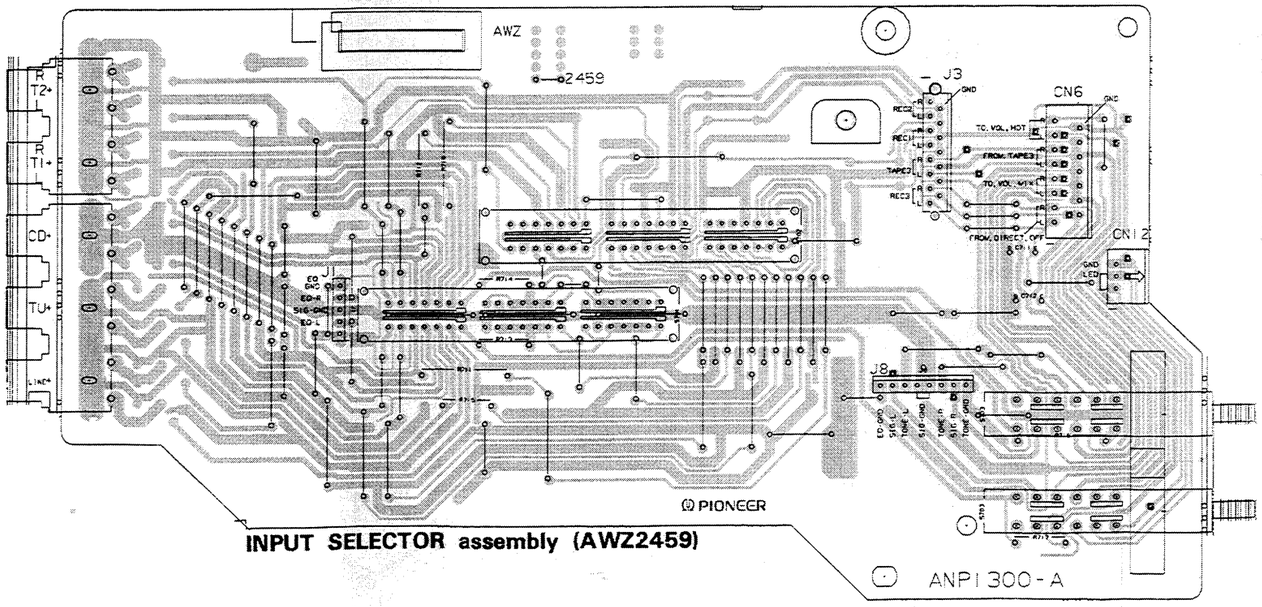
REC OUT assembly



PHONO AMP assembly (AWZ2457)



POWER AMP assembly (AWZ2454)



INPUT SELECTOR assembly (AWZ2459)

NOTE

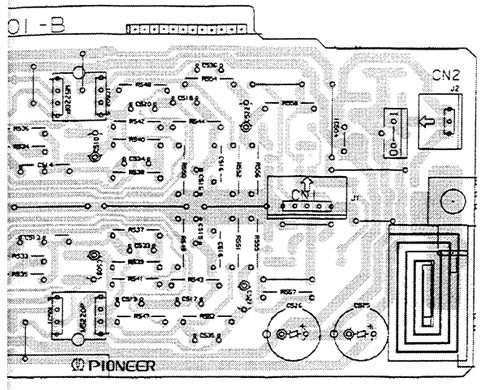
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

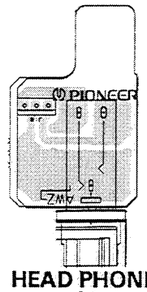
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504	Q504 or Q504	Transistor
Q215	Q215	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

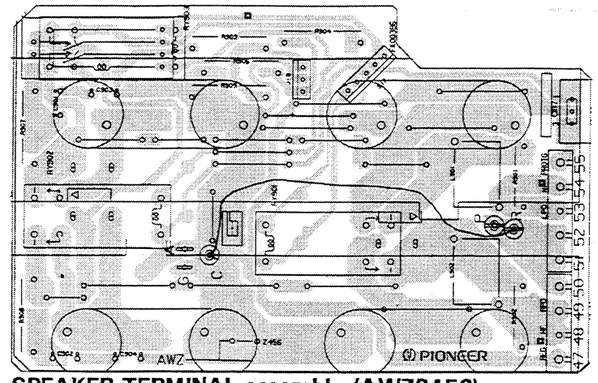
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎(double circles) shows negative terminal.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.



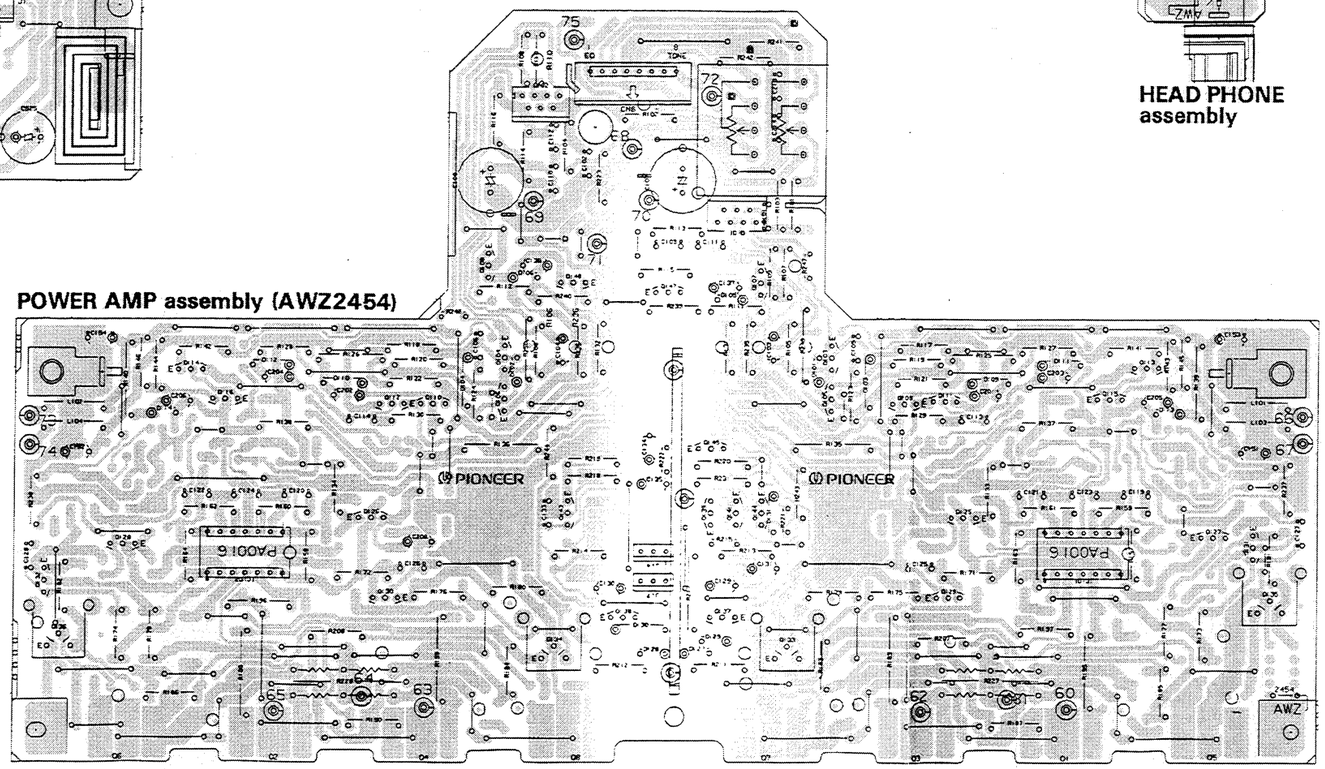


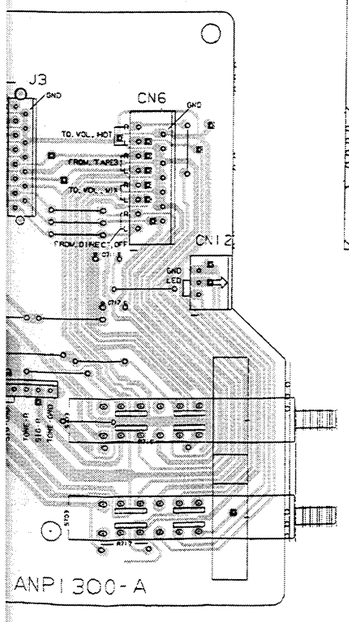
HEAD PHONE assembly

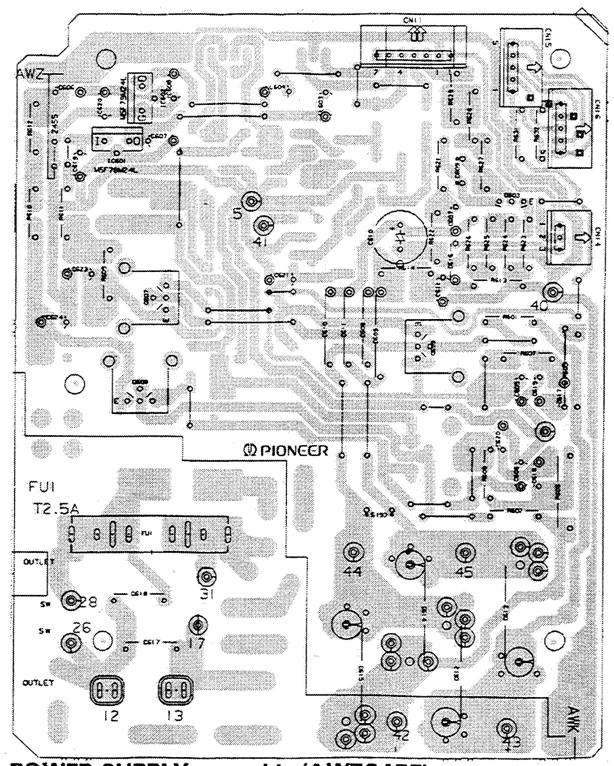


SPEAKER TERMINAL assembly (AWZ2456)

POWER AMP assembly (AWZ2454)







POWER SUPPLY assembly (AWZ2455)

Q132 Q136 Q128 D114 Q114 Q116 IC102 D112 C204 D110 Q126 Q130 Q112 Q110 Q108 D106 D104 Q106 Q102 Q104 Q148 D102 Q134 Q143 Q147 Q138 Q130 Q128 Q101 Q139 Q145 Q141 Q127 Q144 Q129 D105 Q131 Q137 Q107 Q133 D101 Q105 D103 Q103 Q109 Q129 Q125 Q111 D109 D111 IC101 Q115 Q113 Q127 Q131 Q135

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with these shown with the corresponding wiring symbols listed in the following Table.

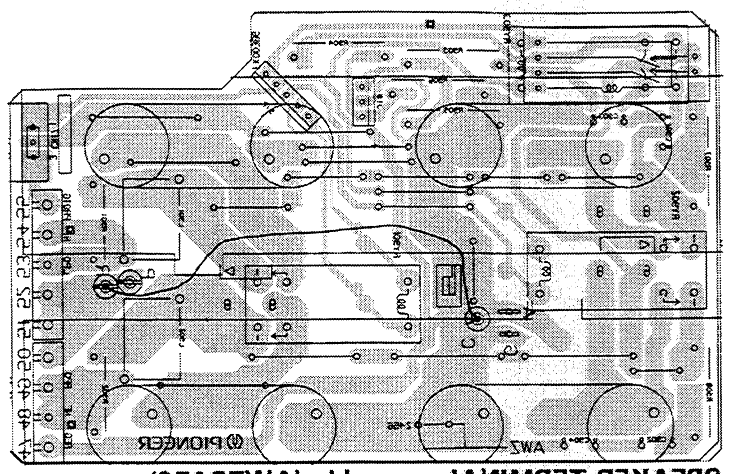
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E C B	E C B or E C B	Transistor
Q215		Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

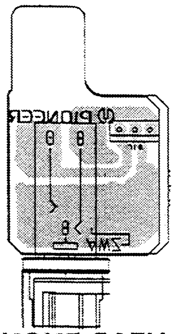
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⊖(double circles) shows negative terminal.
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5. The transistor terminal to which E is affixed shows the emitter.

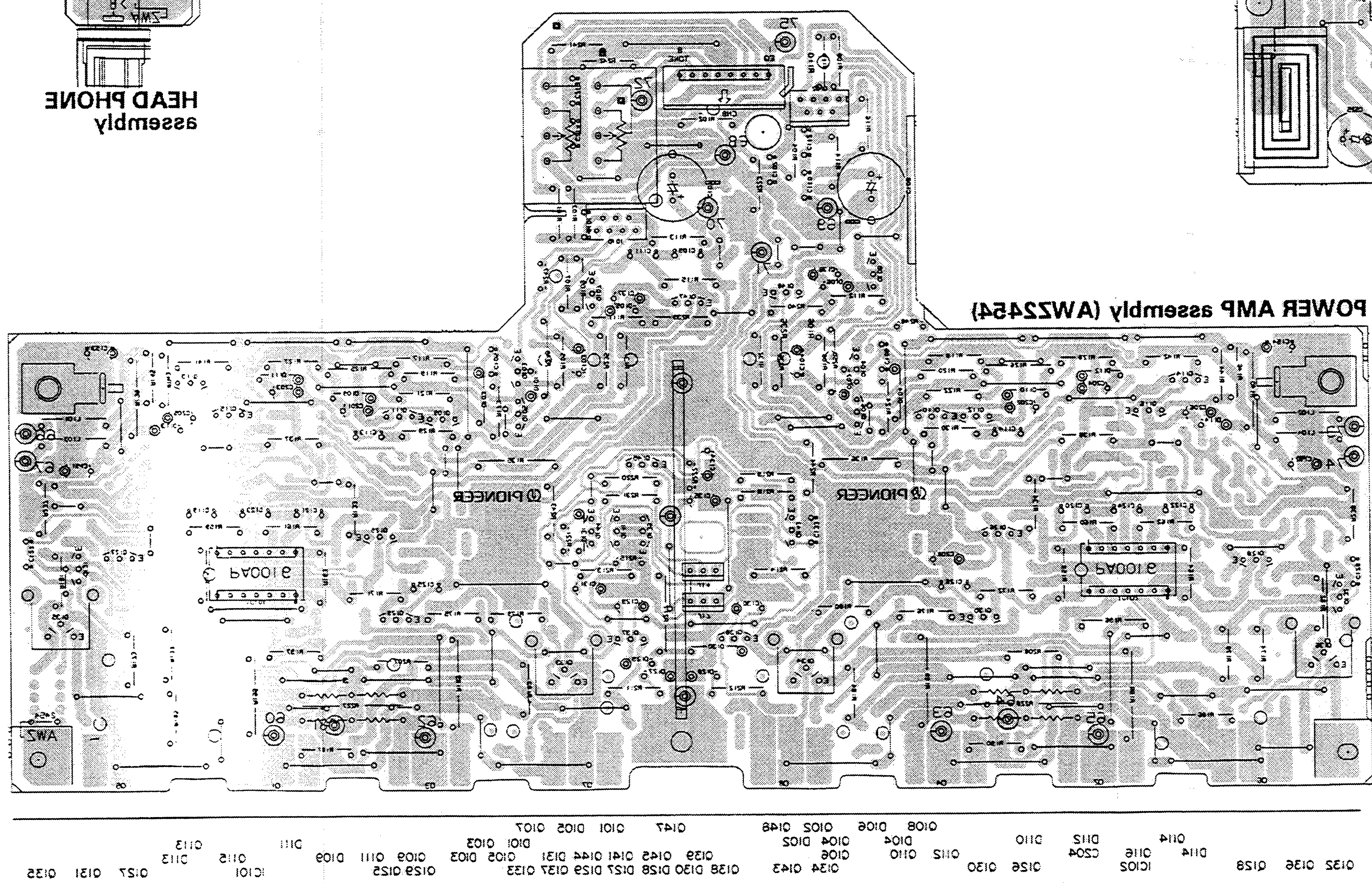
NOTE:
This picture shows the foil side of the printed circuit.



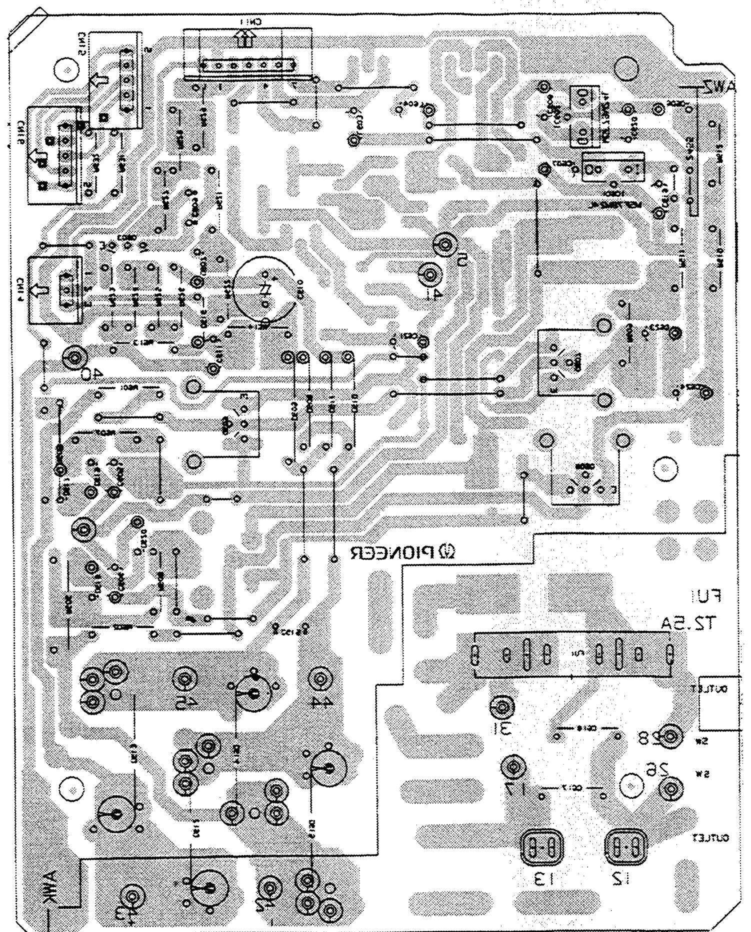
SPEAKER TERMINAL assembly (AWZ2456)



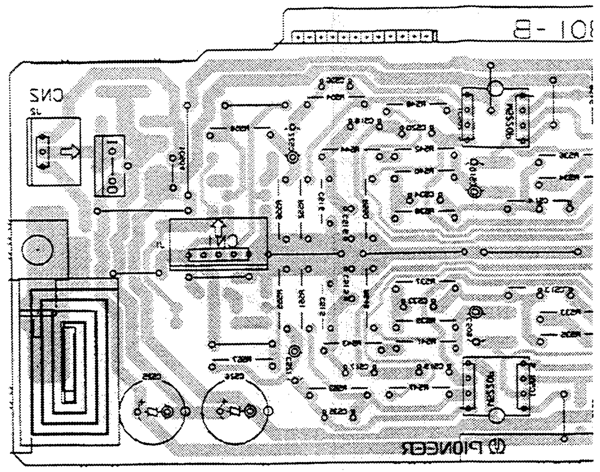
HEAD PHONE assembly

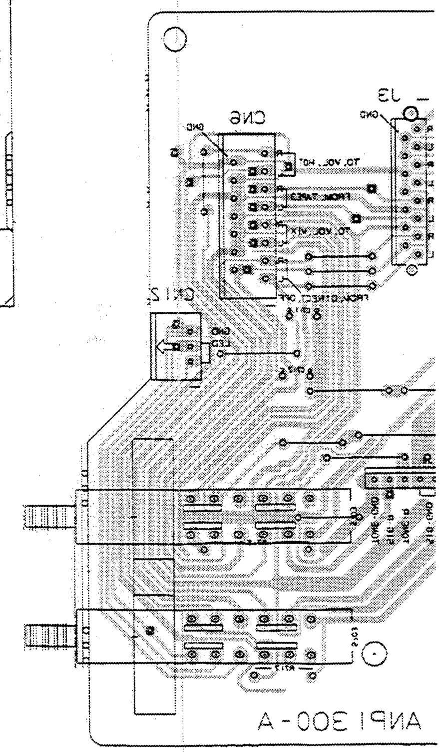


POWER AMP assembly (AWZ2454)

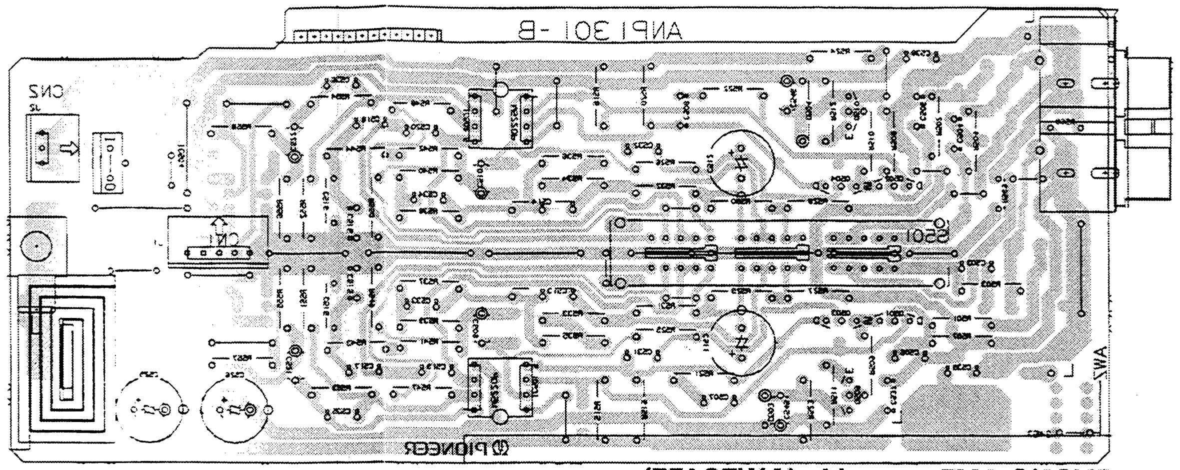


POWER SUPPLY assembly (AWZ2455)

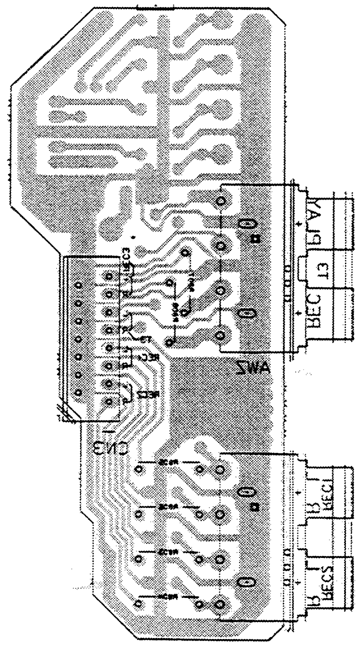




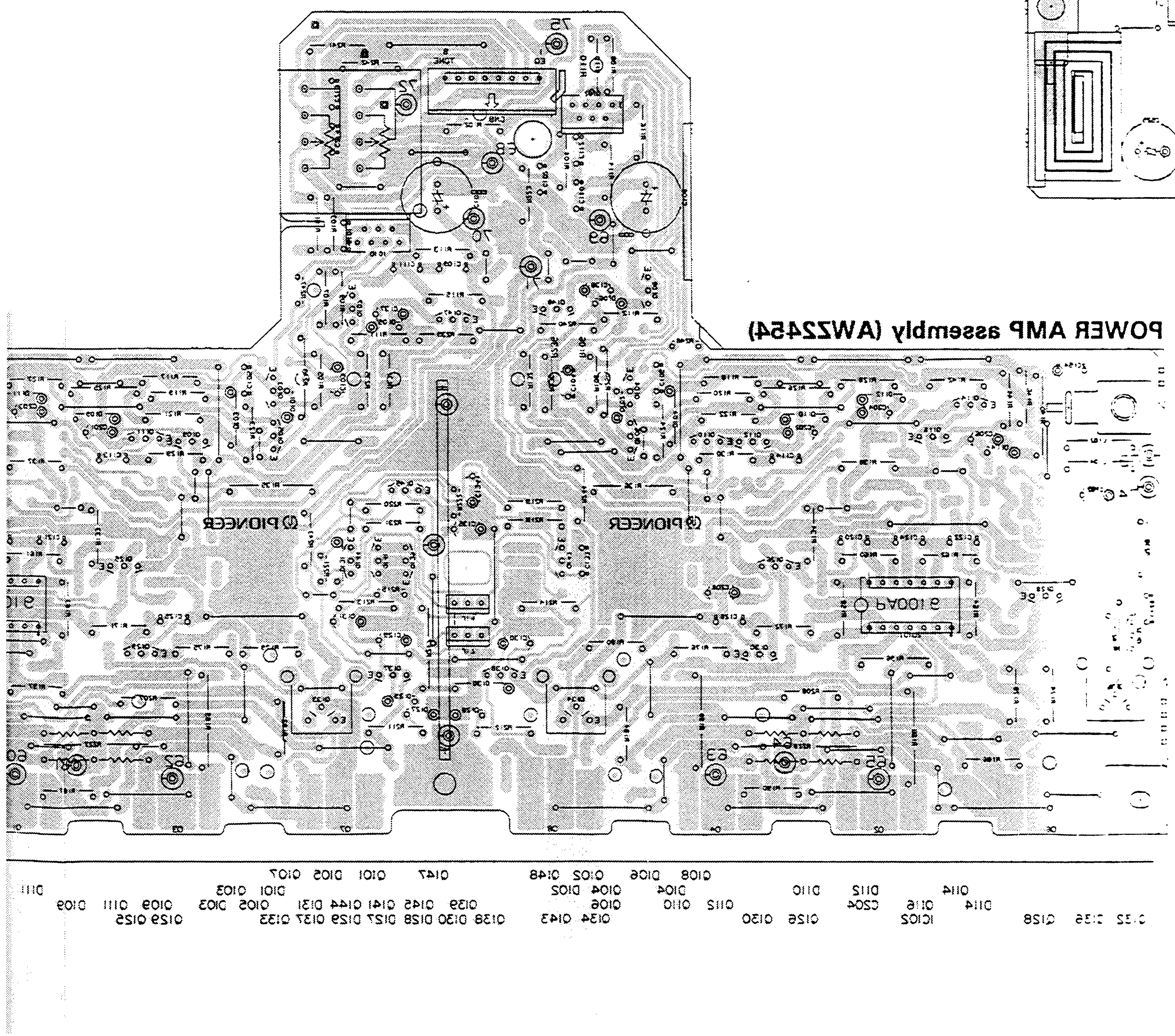
NOTE:
This picture shows the foil side of the printed circuit.



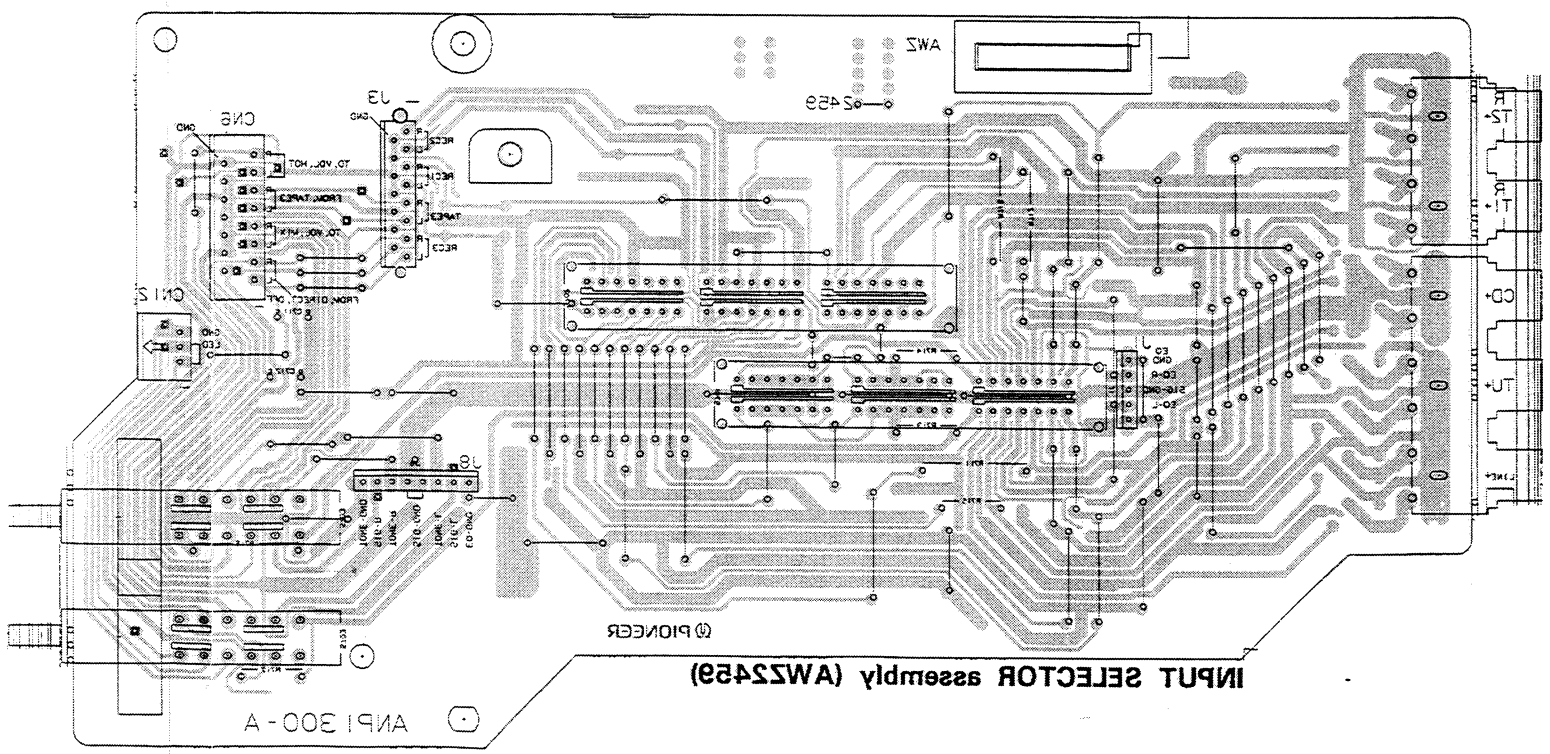
PHONO AMP assembly (AWZ2457)



REC OUT assembly



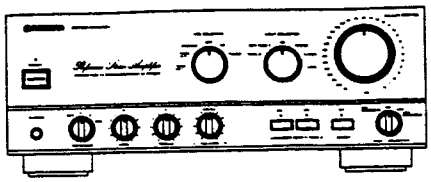
POWER AMP assembly (AWZ2454)



INPUT SELECTOR assembly (AWZ2459)

PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
ARP1817

STEREO AMPLIFIER

A-656

A-656-S

MODELS A-656 AND A-656-S HAS FIVE VERSIONS:

Type	Applicable model		Power requirement	Export destination
	A-656	A-656-S		
HEZ	O	O	AC220V, 240V (switchable)*	West Germany
HE	O	—	AC220V, 240V (switchable)*	Europian continent
HB	O	—	AC220V, 240V (switchable)*	United Kingdom
KC	O	—	AC120V only	Canada
SD	O	—	AC110V, 120V–127V, 220V, 240V (switchable)*	Kingdom of Saudi Arabia and general market

*Change the primary wiring of the power transformer

- This manual is applicable to the A-656/HEZ, HE, HB and A-656-S/HEZ types.
- A-656-S is Silver version of A-656.
- For the other types, refer to additional service manual.

CONTENTS

1. EXPLODED VIEWS AND PARTS LIST 2
2. SCHEMATIC DIAGRAM 6
3. P.C.BOARDS CONNECTION DIAGRAM 9
4. ELECTRICAL PARTS LIST 17
5. FOR HE, HB AND A-656-S/HEZ TYPES 21
6. PANEL FACILITIES 33
7. SPECIFICASIONS 36

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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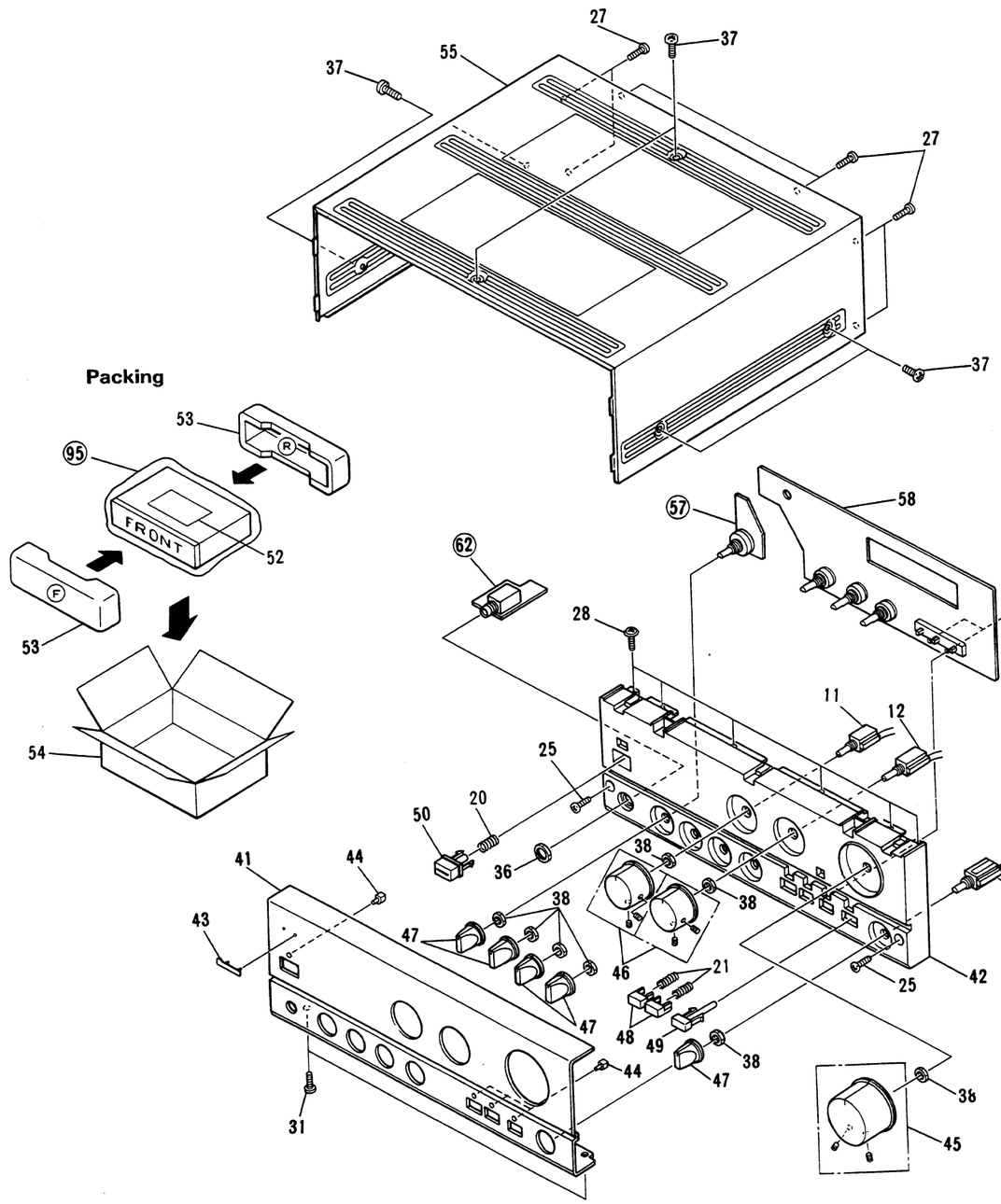
YA MAY 1989 Printed in Japan.

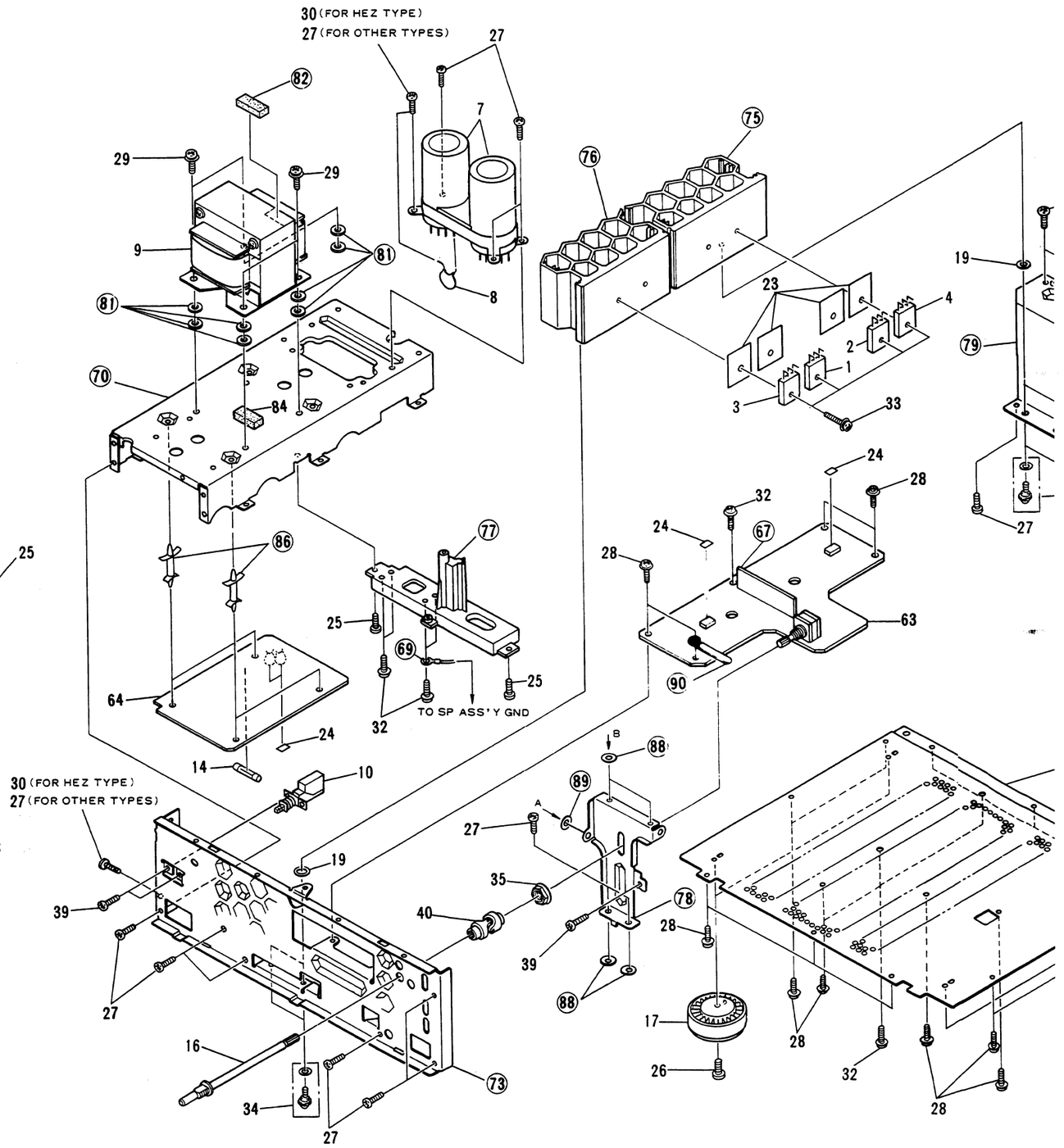
1. EXPLODED VIEWS AND PARTS LIST

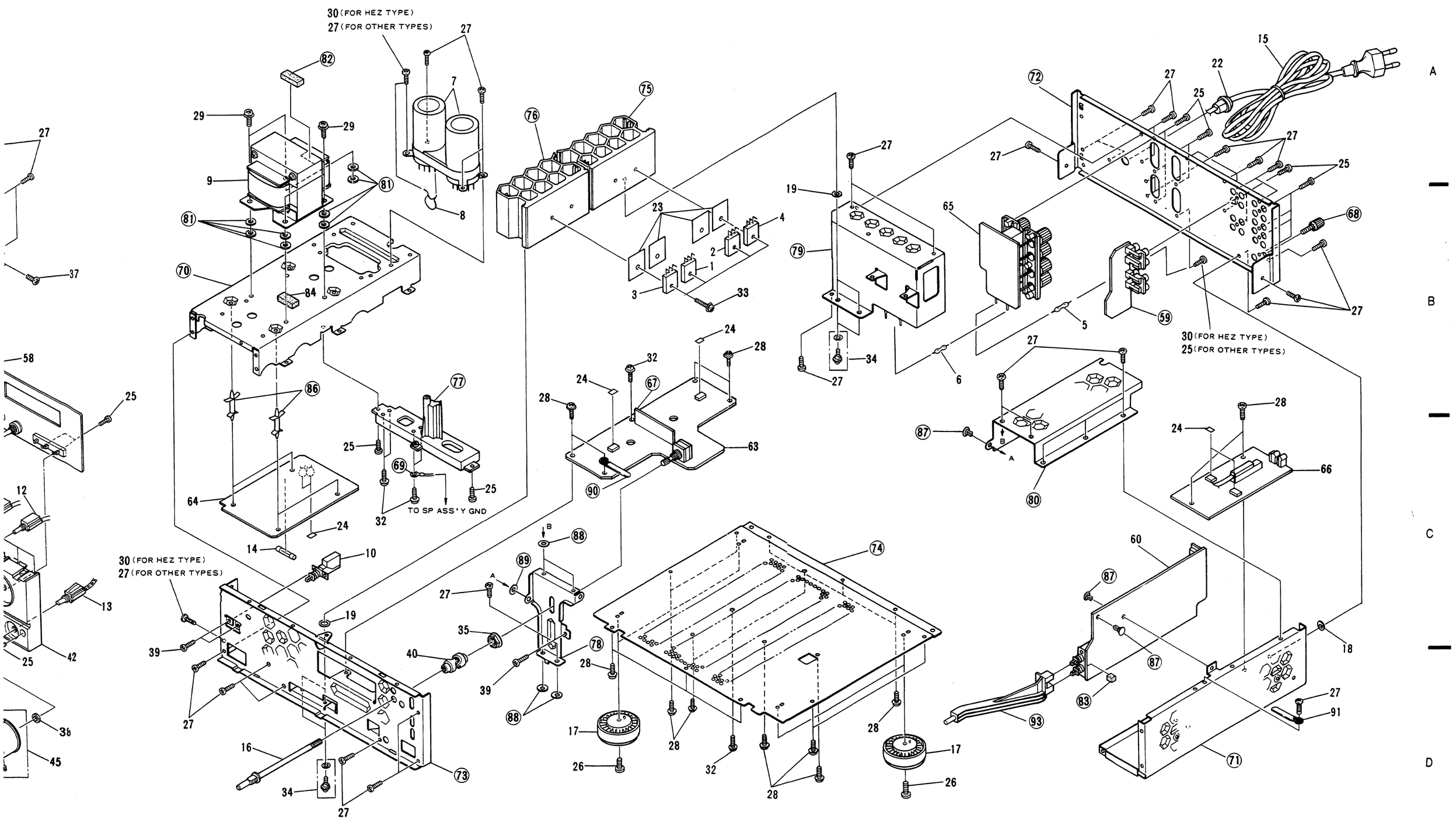
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

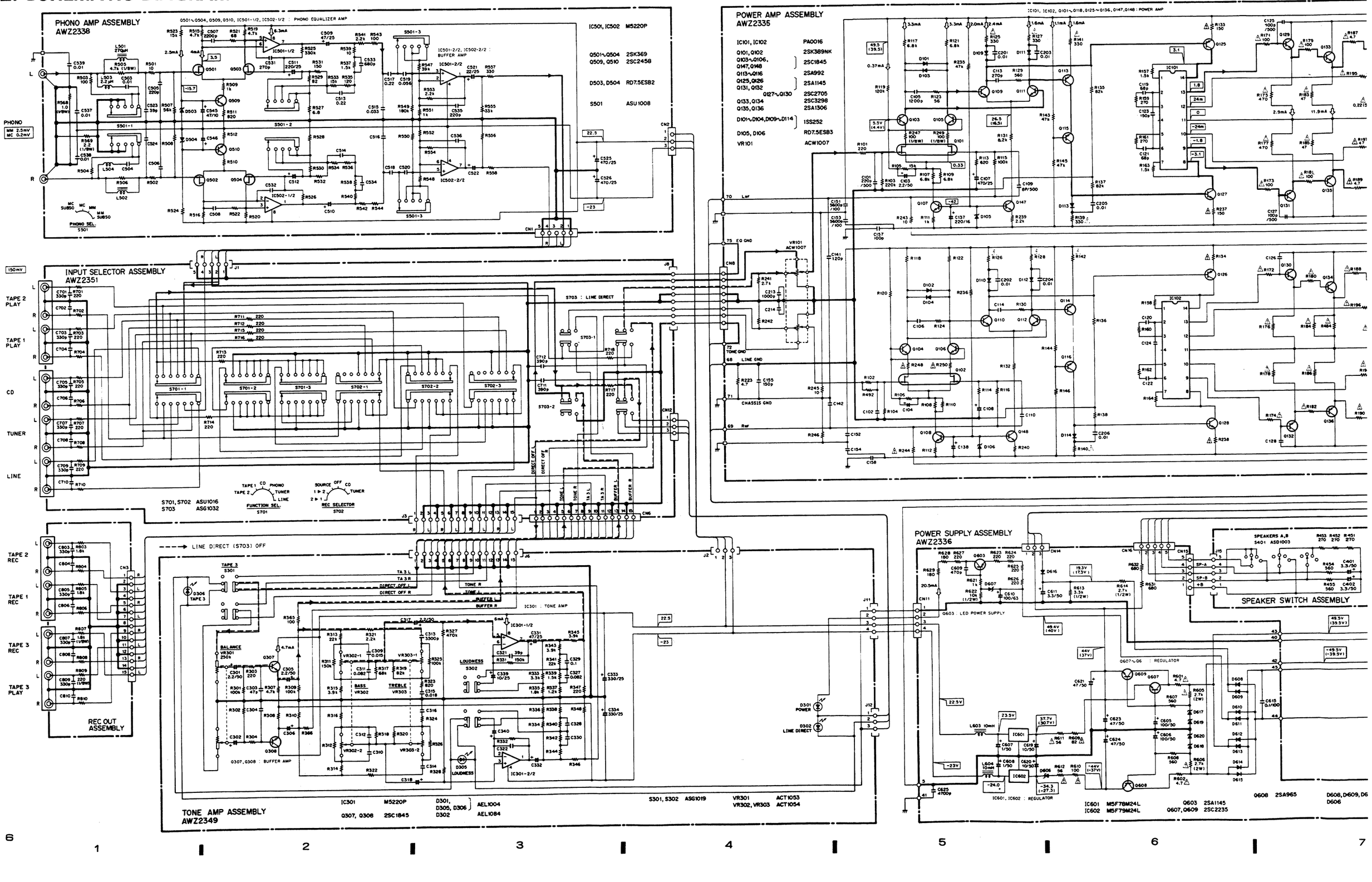
Mark	No.	Part No.	Description
⚠	1	2SA1302	TRANSISTOR Q 3
⚠	2	2SA1302	TRANSISTOR Q 4
⚠	3	2SC3281	TRANSISTOR Q 1
⚠	4	2SC3281	TRANSISTOR Q 2
	5	RD1/4PM220J	CARBON FILM RESISTOR
	6	RD1/4PM4R7J	CARBON FILM RESISTOR
⚠	7	ACH1043	ELECTROLYTIC CAPACITOR
	8	CKDYB472K50	CERAMIC CAPACITOR
⚠	9	ATS1210	POWER TRANSFORMER T1
⚠	10	ASG-552	SWITCH S1
	11	ASU1024	SWITCH S3
	12	ASU1025	SWITCH S2
	13	ASU1026	SWITCH S4
⚠	14	AEK-403	FUSE(T2.5A) FU1
⚠	15	ADG1049	AC POWER CORD
	16	ANL1025	LONG SHAFT ASSY
	17	AMR1159	FOOT
	18	ABF1002	SPACER
	19	ABF1017	WASHER
	20	ABH1033	SPRING
	21	ABH1034	SPRING
	22	AEC-882	STRAIN RELIEF
	23	AEE1014	SHEET
	24	AEH1005	ADHESIVE TAPE
	25	ABA-298	SCREW
	26	ABA1004	SCREW (STEEL)
	27	ABA1009	SCREW (STEEL)
	28	ABA1011	SCREW (STEEL)
	29	ABA1014	SCREW (STEEL)
	30	ABA1047	SCREW (STEEL)
	31	ABA1048	SCREW (STEEL)
	32	ABA1050	SCREW (STEEL)
	33	ABA1082	SCREW
	34	ABA1088	SCREW
	35	ABN-048	FLANGE NUT M9
	36	ABN-065	NUT
	37	FBT40P080FZK	SCREW
	38	NK90FCU	NUT
	39	VMZ30P060FCU	SCREW
	40	AMR1178	HOLDER
	41	ANB1295	FRONT PANEL
	42	AMB1200	BASE
	43	AAM1029	NAME PLATE (METAL)
	44	AMR1160	INDICATING LENS
	45	AAB1107	ROTARY KNOB L
	46	AAB1108	ROTARY KNOB M
	47	AAB1109	ROTARY KNOB S
	48	AAD1536	PUSH KNOB
	49	AAD1560	DIRECT KNOB
	50	AAD1561	POWER KNOB
	51	.....	.....
	52	ARC1146	OPERATING INSTRUCTIONS
	53	AHA1070	STYROL PROTECTOR
	54	AHD1633	PACKING CASE
	55	ANE1075	METAL BONNET
	56	.....	.....
	57		SPEAKER SWITCH
	58	AWZ2349	TONE AMP
	59		REC OUT
	60	AWZ2351	INPUT SELECTOR
	61	.....	.....
	62		HEAD PHONE
	63	AWZ2335	POWER AMP
	64	AWZ2336	POWER SUPPLY
	65	AWZ2337	SPEAKER TERM
	66	AWZ2338	PHONO AMP
	67		SHELD
	68		TERMINAL SCREW
	69		EARTH LEAD
	70		TRANS FRAME
	71		RIGHT FRAME
	72		REAR PANEL
	73		PANEL STAY
	74		BOTTOM PLATE
	75		HEAT SINK
	76		HEAT SINK
	77		HEAT SINK HOLDER
	78		VOLUME HOLDER
	79		SHELD CASE(SP)
	80		SHELD CASE B
	81		DAMPER
	82		CUSHION RUBBER C
	83		CUSHION SPACER
	84		CUSHION RUBBER
	85		NYLON BINDER
	86		P.C.B HOLDER
	87		NYLON RIBET
	88		SPACER
	89		SPACER
	90		BINDER
	91		CLAMPER
	92		.....
	93		PUSH JOINT
	94		
	95		SHEET

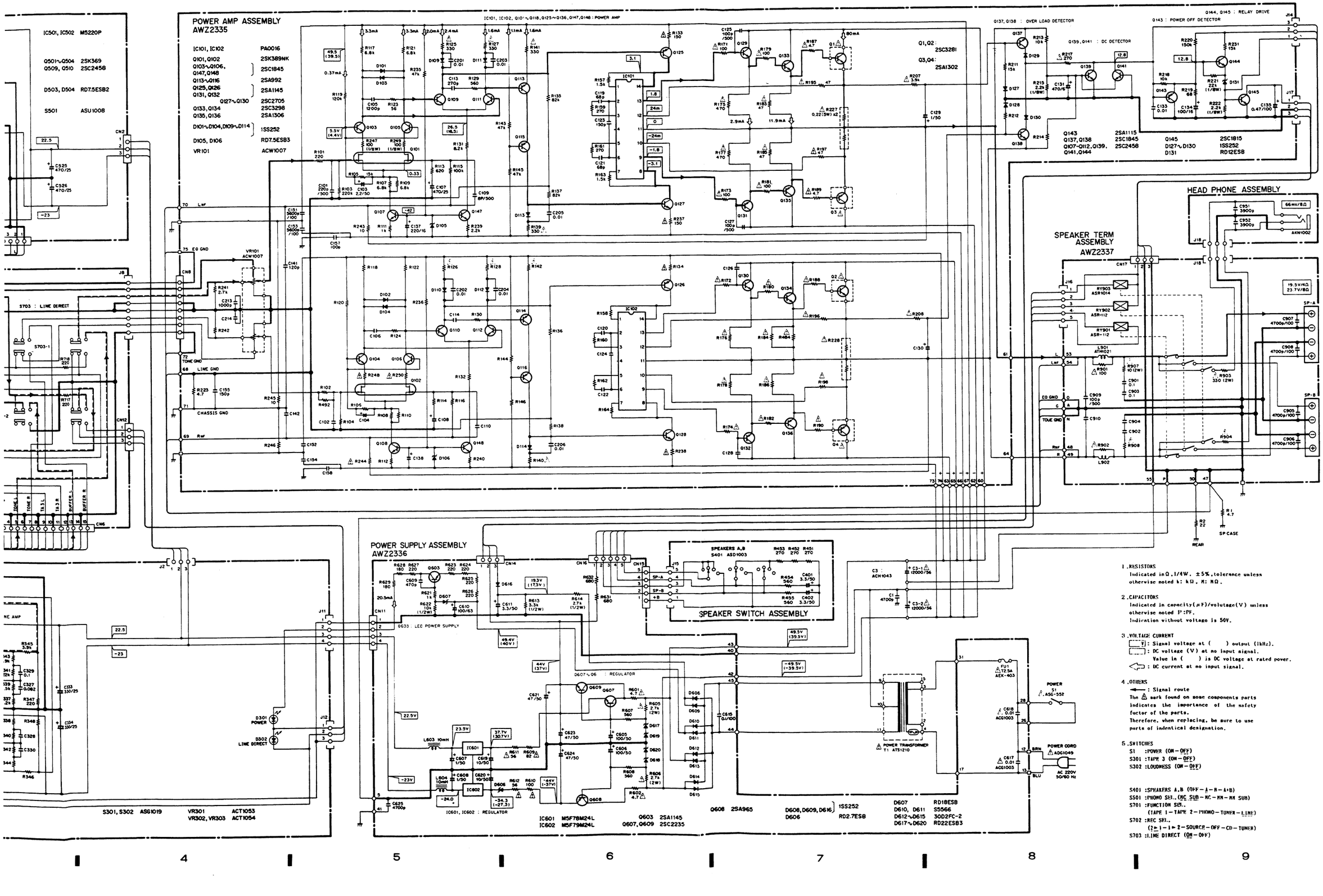

Packing
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30 (FOR HEZ TYPE)
27 (FOR OTHER TYPES)
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TO SP ASS'Y GND
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30 (FOR HEZ TYPE)
27 (FOR OTHER TYPES)
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30 (FOR HEZ TYPE)
27 (FOR OTHER TYPES)
TO SP ASS'Y GND
30 (FOR HEZ TYPE)
25 (FOR OTHER TYPES)
30 (FOR HEZ TYPE)
27 (FOR OTHER TYPES)

2. SCHEMATIC DIAGRAM





1. RESISTORS
Indicated in Ω, 1/4W, ±5%, tolerance unless otherwise noted k: kΩ, M: MΩ.

2. CAPACITORS
Indicated in capacity(μF)/volutage(V) unless otherwise noted P:PF.
Indication without voltage is 50V.

3. VOLTAGE CURRENT
[V]: Signal voltage at ( ) output (1kHz).
[ ]: DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
<: DC current at no input signal.

4. OTHERS
←: Signal route
The ⚠ mark found on some components parts indicates the importance of the safety factor of the parts.
Therefore, when replacing, be sure to use parts of identical designation.

5. SWITCHES
S1 :POWER (ON-OFF)
S301 :TAPE 3 (ON-OFF)
S302 :LOUDNESS (ON-OFF)

S401 :SPEAKERS A,B (OFF-A-B-A+B)
S501 :PHONO SEL. (NC SUB-MC-MM-MM SUB)
S701 :FUNCTION SW.. (TAPE 1-TAPE 2-PHONO-TUNER-LINE)
S702 :REC SEL. (2→1-1→2-SOURCE-OFF-CD-TUNER)
S703 :LINE DIRECT (ON-OFF)

3. P.C.BOARDS CONNECTION DIAGRAM

NOTE

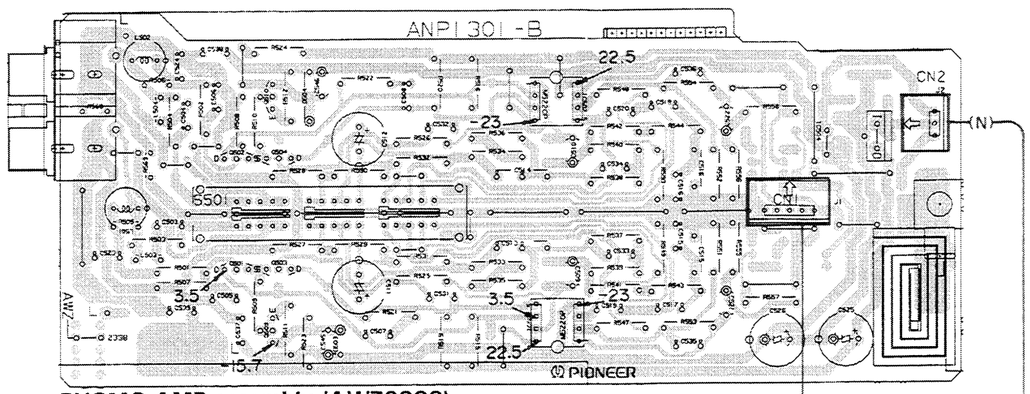
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 (E C B)	E C B or E C B	Transistor
Q215 (C B E)	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

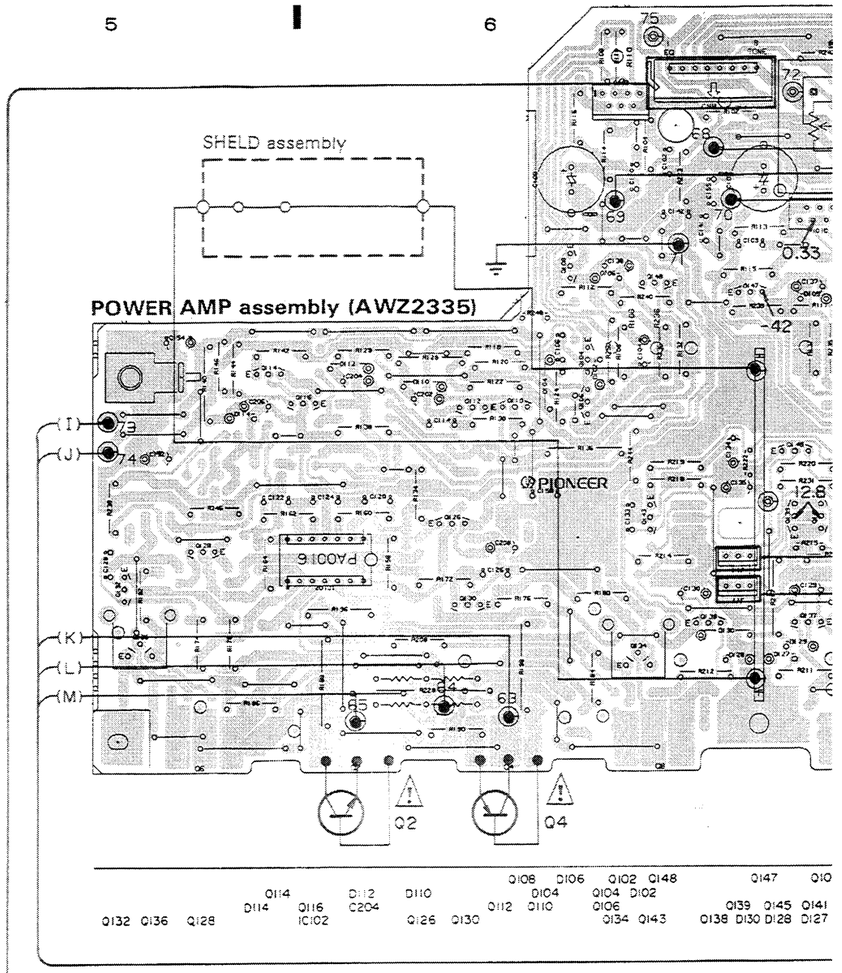
Others

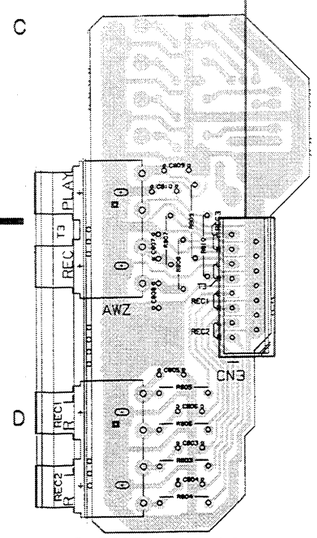
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⓞ (double circles) shows negative termianl.
4. The diode terminal marked with ⓞ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

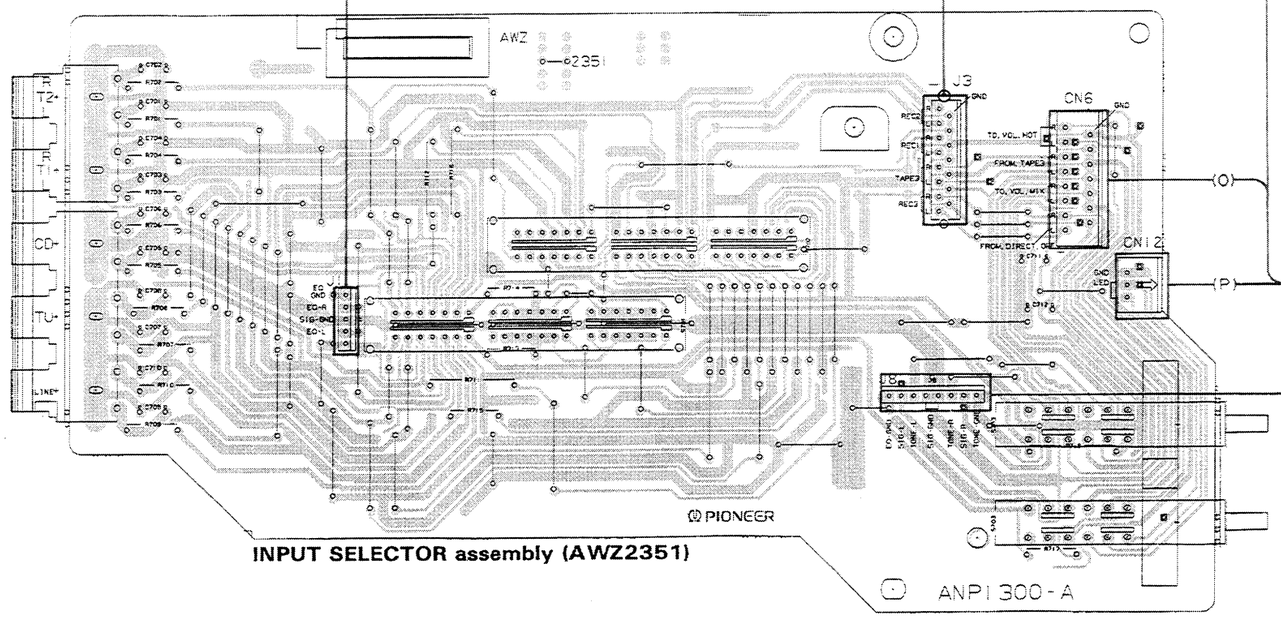


PHOMO AMP assembly (AWZ2338)

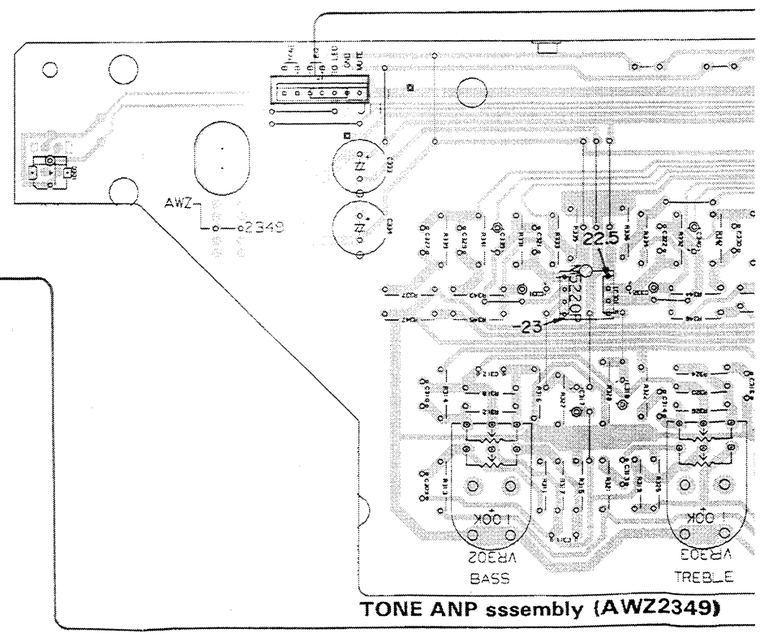




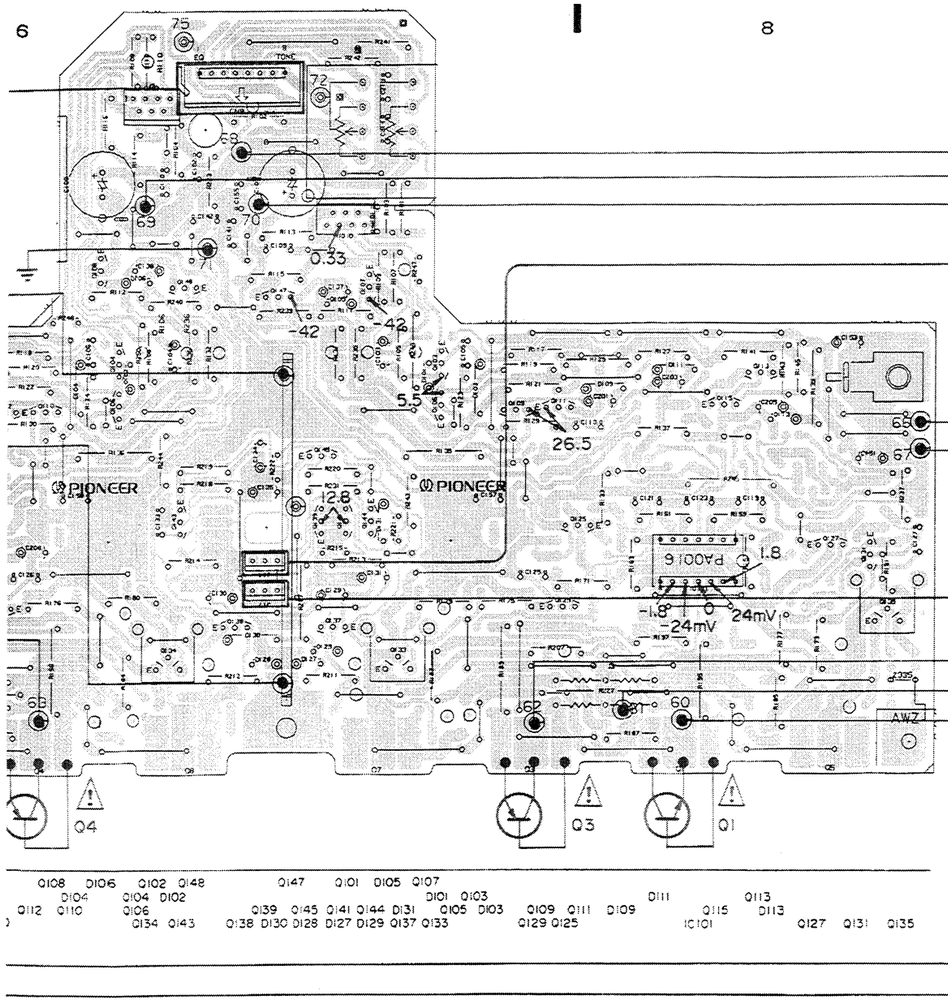
REC OUT assembly

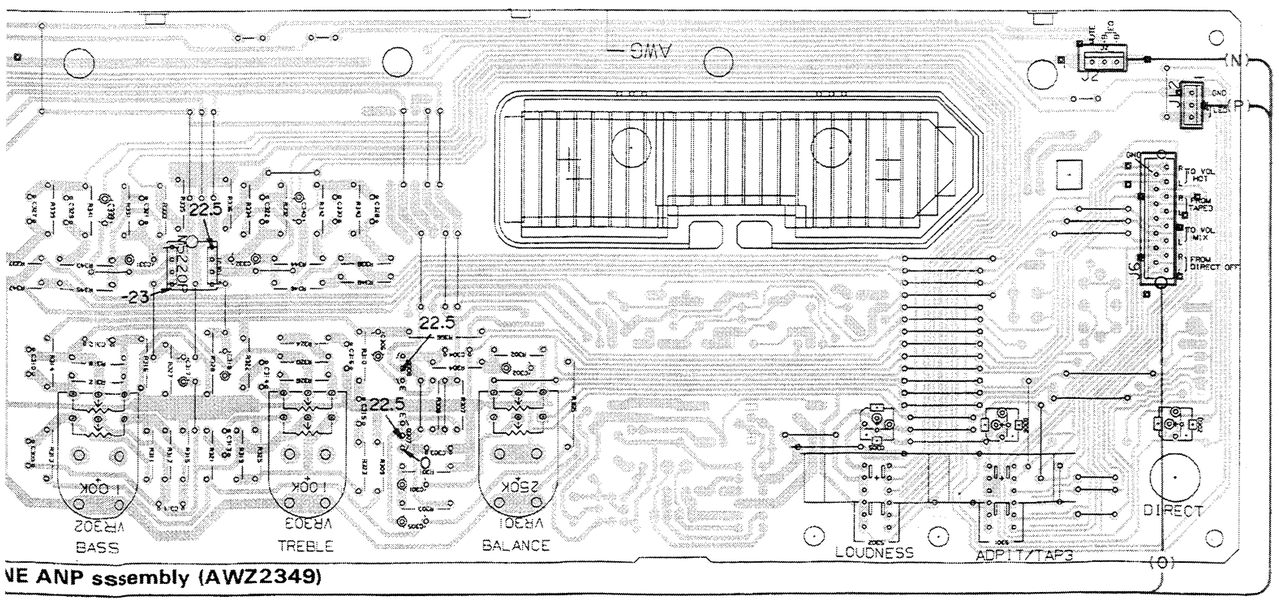


INPUT SELECTOR assembly (AWZ2351)



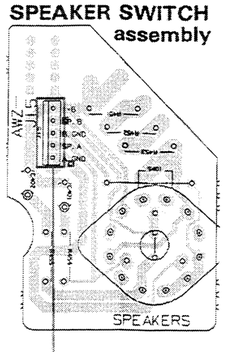
TONE ANP sssembly (AWZ2349)

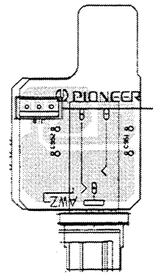




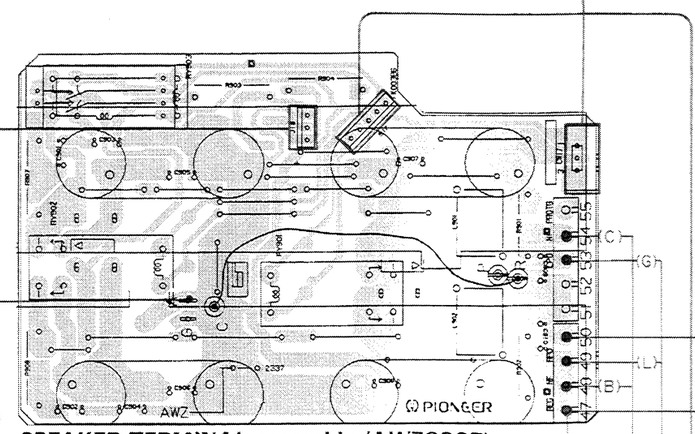
NE ANP sssembly (AWZ2349)

SPEAKER SWITCH assembly



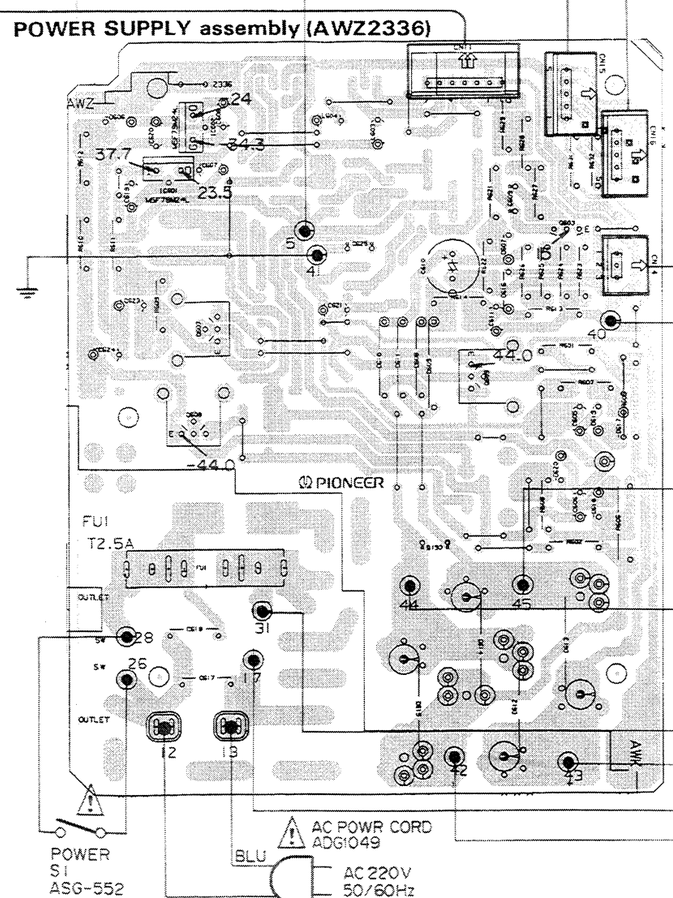


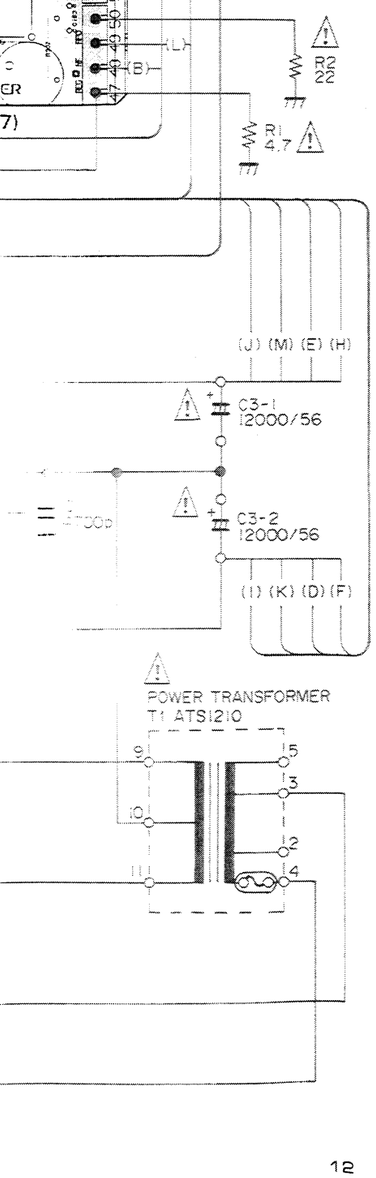
HEAD PHONE assembly

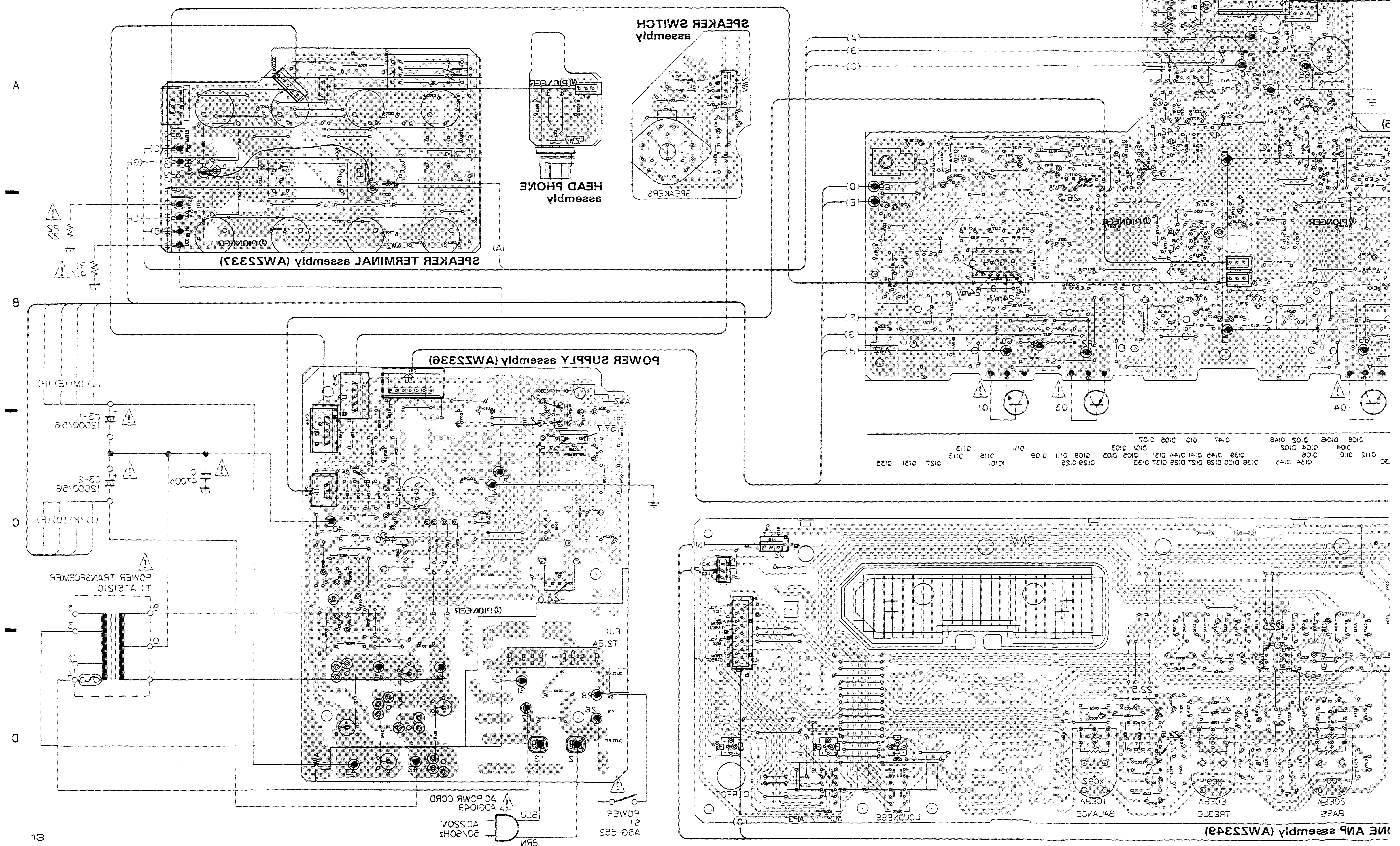


SPEAKER TERMINAL assembly (AWZ2337)

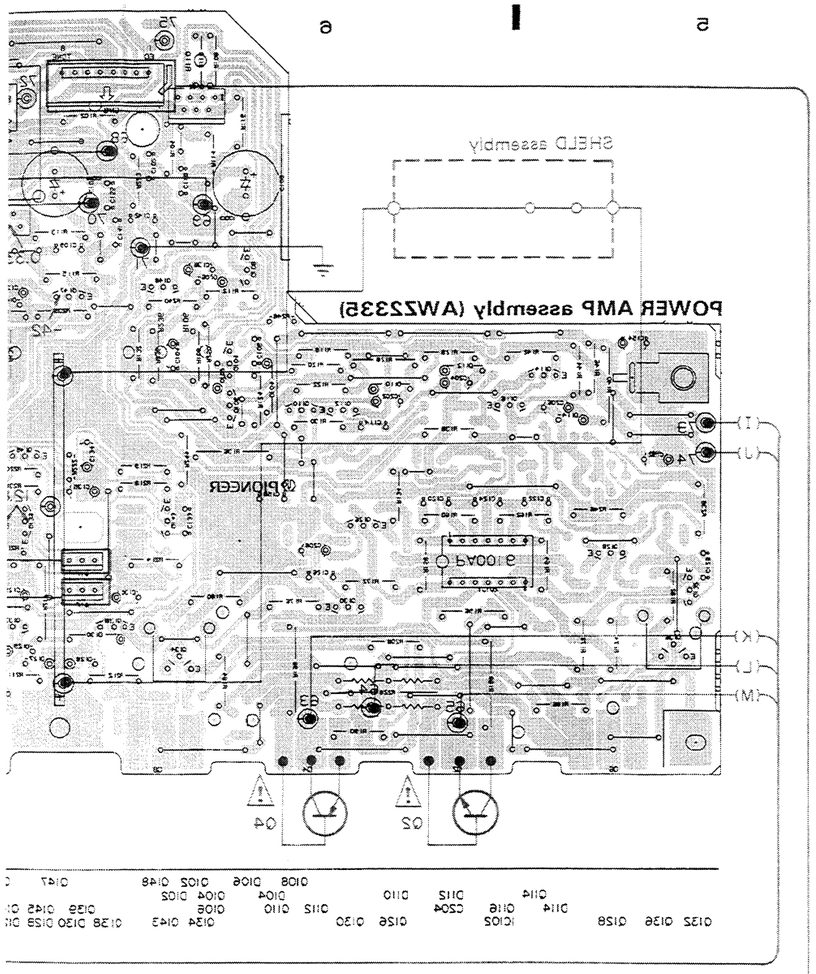
POWER SUPPLY assembly (AWZ2336)

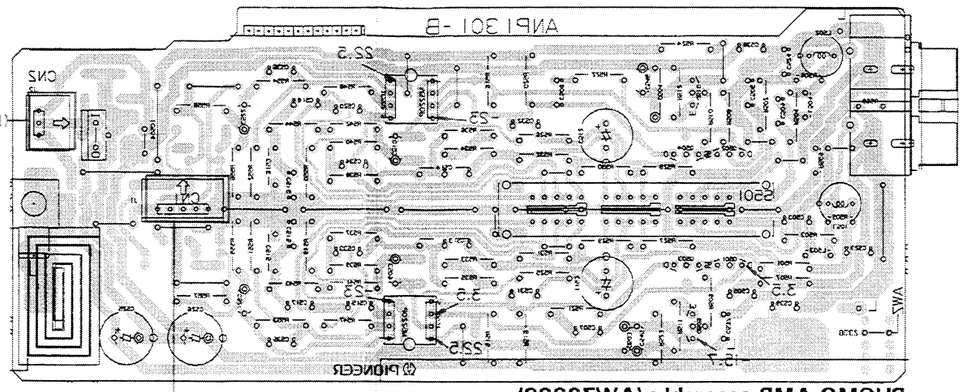


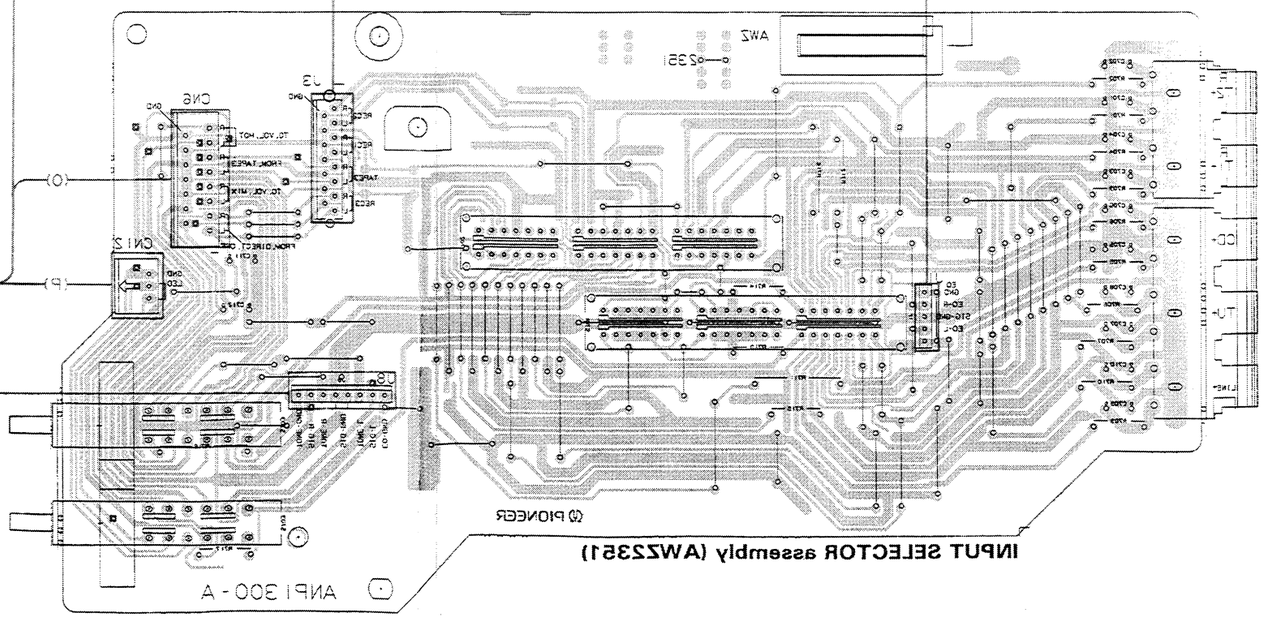


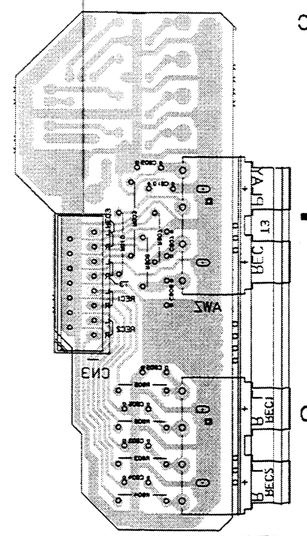

SPEAKER TERMINAL assembly (AWZ2337)
SPEAKER SWITCH assembly
SPEAKERS
HEAD PHONE assembly
POWER SUPPLY assembly (AWZ2336)
ONE AMP assembly (AWZ2349)
POWER TRANSFORMER
T1 ATS1210
C3-1
12000/56
C3-2
12000/56
C1
4700p
R1
4.7
R2
22
FU1
T2.5A
AC POWER CORD
ADG1049
AC 220V
50/60Hz
BLU
BRN
POWER
S1
ASG-552
DIRECT
ADP1 / TAP3
LOUDNESS
BALANCE
VR301
250K
TREBLE
VR303
100K
BASS
VR302
100K
Q1
Q3
Q4
PA0016
26.5
-42
42
0.33
70
72
75
69
1.8
-1.8
24mV
-24mV
60
82
63
24
37.7
23.5
-44.0
28
26
31
17
13
12
22.5
22.0
-23
PIONEER

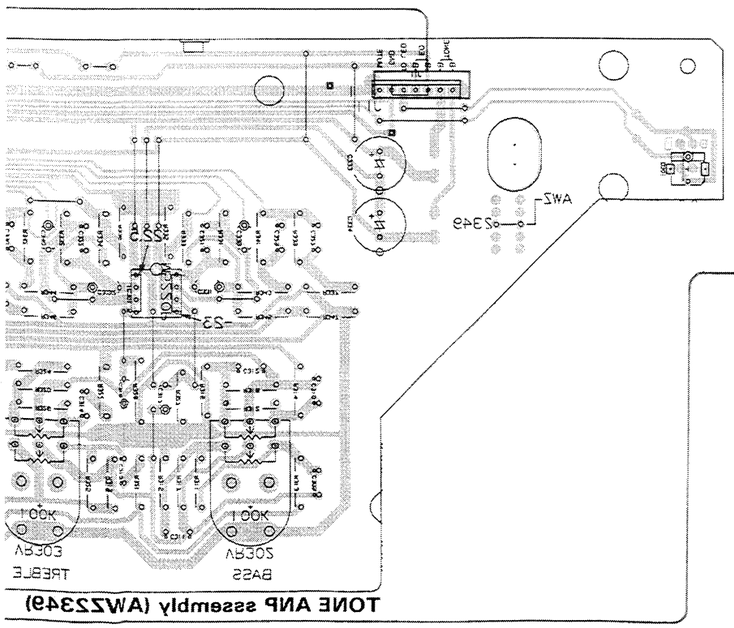
NOTE:
This picture shows the foil side of the printed circuit.











4. ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

Miscellaneous parts

P.C.BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	SPEAKER SWITCH assembly	
	TONE AMP assembly	AWZ2349
	REC OUT assembly	
	INPUT SELECTOR assembly	AWZ2351
	HEAD PHONE assembly	
	POWER AMP assembly	AWZ2335
	POWER SUPPLY assembly	AWZ2336
	SPEAKER TERMINAL assembly	AWZ2337
	PHONO AMP assembly	AWZ2338
	SHELD assembly	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Q3,Q4 Transistor	2SA1302
⚠	Q1,Q2 Transistor	2SC3281
⚠	FU1 Fuse (T2.5A/250V)	AEK−403
⚠	T1 Power transformer (AC220V/240V)	ATS1210
⚠	S1 Push switch (POWER)	ASG−552
	S3 Remote slide rotary switch	ASU1024
	S2 Remote slide rotaty switch	ASU1025
	S4 Remote slide rotary switch	ASU1026
⚠	C3 Electrolytic capacitor (12000μF/56)	ACH1043
	C1 Ceramic capacitor	CKDYB472K5C
	R2 Carbon film resistor	RD1/4PM220J
	R1 Carbon film resistor	RD1/4PM4R7J
⚠	AC Power cord	ADG1049
	Strain relief	AEC−882

SPEAKER SWITCH assembly

SWITCH

Mark	Symbol & Description	Part No.
	S401 Rotary switch (SPEAKERS)	ASD1003

CAPACITORS

Mark	Symbol & Description	Part No.
	C401,C402	CEAS3R3M50

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/4PM□□□J

TONE ANP sssembly (AWZ2349)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	M5220P
	Q307,Q308	2SC1845
	D301,D305,D306 LED assembly	AEL1004
	D302 LED	AEL1084

SWITCHES

Mark	Symbol & Description	Part No.
	S301,S302 Push switch (TAPE 3, LOUDNESS)	ASG1019

CAPACITORS

Mark	Symbol & Description	Part No.
	C321,C322	CCCSL390J50
	C303,C304	CCCSL470J50
	C339,C340	CEAS100M25
	C333,C334	CEAS331M25
	C301,C302,C305,C306,C317 C318	CEAS2R2M50

Mark	Symbol & Description	Part No.
	C331,C332	CEAS470M25
	C329,C330	CFTXA104J50
	C309,C310	CFTXA153J50
	C315,C316	CFTXA183J50
	C311,C312,C327,C328	CFTXA823J50
	C313,C314	CQMA332K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR301 (250k × 2)	ACT1053
	VR302,VR303 (100k × 2)	ACT1054
	Other resistors	RD1/4PM□□□J

REC OUT assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C803 – C810	CKCYB331K50

RESISTORS

Mark	Symbol & Description	Part No.
	R803 – R806	RD1/4PM182J
	R807 – R810	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (TAPE 1 – 3)	AKB1009

INPUT SELECTOR assembly (AWZ2351)

SWITCHES

Mark	Symbol & Description	Part No.
	S703 Push switch (LINE DIRECT)	ASG1032
	S701,S702 Remote slide switch (FUNCTION SEL., REC SEL)	ASU1016

CAPACITORS

Mark	Symbol & Description	Part No.
	C701 – C710	CKCYB331K50
	C711,C712	CKCYB391K50

RESISTORS

Mark	Symbol & Description	Part No.
	R701 – R718	RD1/4PM221J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (TAPE 1, TAPE 2)	AKB1007
	Terminal 6P (CD, TUNER, LINE)	AKB1008

HEAD PHONE assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C951,C952	CKCYB392K50

OTHERS

Mark	Symbol & Description	Part No.
	Jack (HEAD PHONE)	AKN1002

POWER AMP assembly (AWZ2335)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC101,IC102	PA0016
	Q143	2SA1115
	Q125,Q126,Q131,Q132	2SA1145
	Q135,Q136	2SA1306
	Q113 – Q116	2SA992
	Q145	2SC1815
	Q103 – Q106,Q137,Q138,Q147, Q148	2SC1845
	Q107 – Q112,Q139,Q141,Q144	2SC2458
	Q127 – Q130	2SC2705
	Q133,Q134	2SC3298
	Q101,Q102	2SK389NK
	D131 Zener diode	RD12ESB
	D105,D106 Zener diode	RD7.5ESB3
	D101 – D104,D109 – D114 D127 – D130	1SS252

CAPACITORS

Mark	Symbol & Description	Part No.
	C157,C158	CCCSL101J50
	C125 – C128	CCCSL101K500
	C141,C142	CCCSL121J50
	C123,C124,C155	CCCSL151J50
	C101,C102	CCCSL221J50
	C113,C114	CCCSL271J50
	C119 – C122	CCCSL680J50
	C135	CEASR47M100
	C129,C130	CEAS010M50
	C134	CEAS101M16
	C137,C138	CEAS221M16
	C131	CEAS471M6
	C103,C104	CEXA2R2M50
	C107,C108	CEYA471M25
	C105,C106	CKCYB122K50
	C133	CKCYF103Z50
	C213,C214	CKDYF102Z50
	C109,C110	CMA080D500
	C151 – C154	CQMXA562J100
	C201 – C206	CKDYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR101	ACW1007
⚠	R227,R228 (0.22×2)	ACN−146
	R243,R244	RDR1/4PM100J
	R247,R249	RD1/8PM101J
	R245	RD1/4PM100J
	R215,R221,R222,R248,R250	RD1/8PM□□□J
	R101−R104,R113−R116,R241, R242	RDR1/4PM□□□J
⚠	R171−R182,R187−R190,R207, R208,R217	RD1/4PMF□□□J
⚠	R125−R128,R133,R134, R139−R142,R183−R186, R195−R198,R237,R238	RFA1/4PS□□□J
	Other resistors	RD1/4PM□□□J

POWER SUPPLY assembly (AWZ2336)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC601	M5F78M24L
	IC602	M5F79M24L
	Q603	2SA1145
	Q608	2SA965
	Q607,Q609	2SC2235
	D607 Zener diode	RD18ESB
	D606 Zener diode	RD2.7ESB
	D617−D620 Zener diode	RD22ESB3
	D610,D611	S5566
	D608,D609,D616	1SS252
	D612−D615	30D2FC−2

COILS

Mark	Symbol & Description	Part No.
	L603,L604 Inductor (10mH)	LTA103J

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C617,C618 (0.01/400V)	ACG1003
	C607,C608	CEAS010M50
	C619,C620	CEAS100M50
	C605,C606	CEAS101M50
	C610	CEAS101M63
	C611	CEAS3R3M50
	C621,C623,C624	CEAS470M50
	C609	CKCYB471K50
	C625	CKCYB472K50
	C615	CQMXA104J100

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R612	RD1/4PMF560J
⚠	R611	RD1/4PMF560J
	R622,R614,R613	RD1/2PM□□□J
⚠	R609,R610	RFA1/4PS□□□J
⚠	R601,R602	RFA1/4PS4R7J
⚠	R605,R606	RS2LMF272J
	Other resistors	RD1/4PM□□□J

SPEAKER TERMINAL assembly (AWZ2337)

RELAIES

Mark	Symbol & Description	Part No.
	RY901,RY902 Relay	ASR−112
	RY903 Relay	ASR1014

COILS

Mark	Symbol & Description	Part No.
	L901,L902 AF Choke coil (2.7μH)	ATH1021

CAPACITORS

Mark	Symbol & Description	Part No.
	C909,C910	CCDSL101K500
	C901−C904	CFTXA104J50
	C905−C908	CQMXA472J100

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R901,R902	RS1MF101J
⚠	R903,R904,R907,R908	RS2LMF□□□J

OTHER

Mark	Symbol & Description	Part No.
	Terminal 4P (SPEAKER)	AKE1015

PHOMO AMP assembly (AWZ2338)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC501,IC502	M5220P
	Q509,Q510	2SC2458
	Q501−Q504	2SK369
	D503,D504 Zener diode	RD7.5ESB2

SWITCH

Mark	Symbol & Description	Part No.
	S501 Remote slide switch (PHONO SEL.)	ASU1008

COILS

Mark	Symbol & Description	Part No.
	L501,L502 (270μH)	ATH1024
	L503,L504 Axial inductor (2.2μH)	LAU2R2M

CAPACITORS

Mark	Symbol & Description	Part No.
	C505,C506,C535,C536	CCCSL221J50
	C531,C532	CCCSL271J50
	C523,C524	CCCSL390J50
	C545,C546	CEAS470M10
	C525,C526	CEXA471M25
	C521,C522	CEXA220M25
	C511,C512	CEXA221M25
	C509,C510	CEXA470M25
	C503,C504	CFTXA103J50
	C513,C514,C517,C518	CFTXA224J50
	C515,C516	CFTXA333J50
	C519,C520	CFTXA563J50
	C507,C508	CKCYB222K50
	C533,C534	CKCYB681K50
	C537－C539	CKCYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R527－R530,R533,R534,R537, R538,R541,R542,R501－R504	RDR1/4PM□□□F
	R505,R506,R568,R569	RD1/8PM□□□J
	Other resistors	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 1P (PHONO L)	AKB1025
	Terminal 1P (PHONO R)	AKB1026

SHELD assembly

No parts are supplied with the SHELD assembly

Line Voltage Selection

Line voltage can be changed with following steps.
1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary pins.

Voltage	Power transformer PIN No.
220V	3
240V	5

4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

5. FOR HE, HB AND A-656-S/HEZ TYPES

5.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The A-656/HE, HB and A-656-S/HEZ types are the same as the A-656/HEZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		A-656/ HEZ type	A-656/ HE type	A-656/ HB type	A-656-S/ HEZ type	
	REC OUT assembly	Non supply	Non supply	Non supply	Non supply	
	INPUT SELECTOR assembly	AWZ2351	AWZ2459	AWZ2459	AWZ2351	
	HEAD PHONE assembly	Non supply	Non supply	Non supply	Non supply	
	POWER ANP assembly	AWZ2335	AWZ2454	AWZ2454	AWZ2335	
	POWER SUPPLY assembly	AWZ2336	AWZ2455	AWZ2455	AWZ2336	
	SPEAKER TERMINAL assembly	AWZ2337	AWZ2456	AWZ2456	AWZ2337	
	PHONO AMP assembly	AWZ2338	AWZ2457	AWZ2457	AWZ2338	
⚠	FU1 Fuse (T2.5A/250V)	AEK−403	AEK−403	AEK−512	AEK−403	
	C1 Ceramic capacitor	CKDYB472K50	.....	.....	CKDYB472K50	
	R2 Carbon film resistor	RD1/4PM220J	.....	.....	RD1/4PM220J	
	R1 Carbon film resistor	RD1/4PM4R7J	.....	.....	RD1/4PM4R7J	
⚠	AC Power cord	ADG1049	ADG1049	ADG1052	ADG1049	
	Earth screw	ABA1047	.....	.....	ABA1047	
	Operating instructions (German)	ARC1146	.....	.....	ARC1146	
	Operating instructions (English, French, Dutch, Italian, Nederlands, Svenska, Spanish, portuguese)	.....	ARE1128	.....	.....	
	Operating instructions (English)	.....	.....	ARB1175	.....	
	SCREW (BONNET)	FBT40P080FZK	FBT40P080FZK	FBT40P080FZK	FBT40P080FCR	
	Rotary knob L	AAB1107	AAB1107	AAB1107	AAB1110	
	Rotary knob M	AAB1108	AAB1108	AAB1108	AAB1112	
	Rotary knob S	AAB1109	AAB1109	AAB1109	AAB1111	
	Push knob	AAD1536	AAD1536	AAD1536	AAD1538	
	Direct knob	AAD1560	AAD1560	AAD1560	AAD1562	
	Power knob	AAD1561	AAD1561	AAD1561	AAD1563	
	Panel base	AMB1200	AMB1200	AMB1200	AMB1495	
	Front panel	ANB1295	ANB1295	ANB1295	ANB1296	
	Bonnet case	ANE1075	ANE1075	ANE1075	ANE1076	
	Packing case	AHD1633	AHD1633	AHD1633	AHD1634	

REC OUT assembly

The REC OUT assembly (HE,HB types) is the same as the REC OUT assembly (HEZ type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HEZ type	HE, HB types	
	C803–C810	CKCYB331K50	.....	
	R803–R806	RD1/4PM182J	RD1/4PM222J	
	R807,R808	RD1/8PM182J	RD1/8PM222J	
	R809,R810	RD1/8PM221J	.....	

INPUT SELECTOR assembly (AWZ2459)

The INPUT SELECTOR assembly (AWZ2459) is the same as the INPUT SELECTOR assembly (AWZ2351) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2351	AWZ2459	
	C701–C710	CKCYB331K50	.....	
	R701–R710	RD1/4PM221J	.....	

HEAD PHONE assembly

The HEAD PHONE assembly (HE,HB types) is the same as the HEAD PHONE assembly (HEZ type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HEZ type	HE, HB types	
	C951,C952	CKCYB392K50	.....	

POWER AMP assembly (AWZ2454)

The POWER AMP assembly (AWZ2454) is the same as the POWER AMP assembly (AWZ2335) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2335	AWZ2454	
	L101–L104	.....	ATX1012	
	C105,C106	CKCYB122K50	CKCYB152K50	
	C109,C110	CMA080D500	CMA150J500	
	C111,C112	.....	CMA150J500	
	C141,C142	CCCSL121J50	.....	
	C155	CCCSL151J50	.....	
	C157,C158	CCCSL101J50	.....	
	R123,R124	RD1/4PM560J	RD1/4PM101J	
	R245,R246	RD1/4PM100J	.....	

POWER SUPPLY assembly (AWZ2455)

The POWER SUPPLY assembly (AWZ2455) is the same as the POWER SUPPLY assembly (AWZ2336) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2336	AWZ2455	
	C615	CQMXA104J100	ACG1005	
	C625	CKCYB472K50	.....	

SPEAKER TERMINAL assembly (AWZ2456)

The SPEAKER TERMINAL assembly (AWZ2456) is the same as the SPEAKER TERMINAL assembly (AWZ2337) with the exception of the following sections.

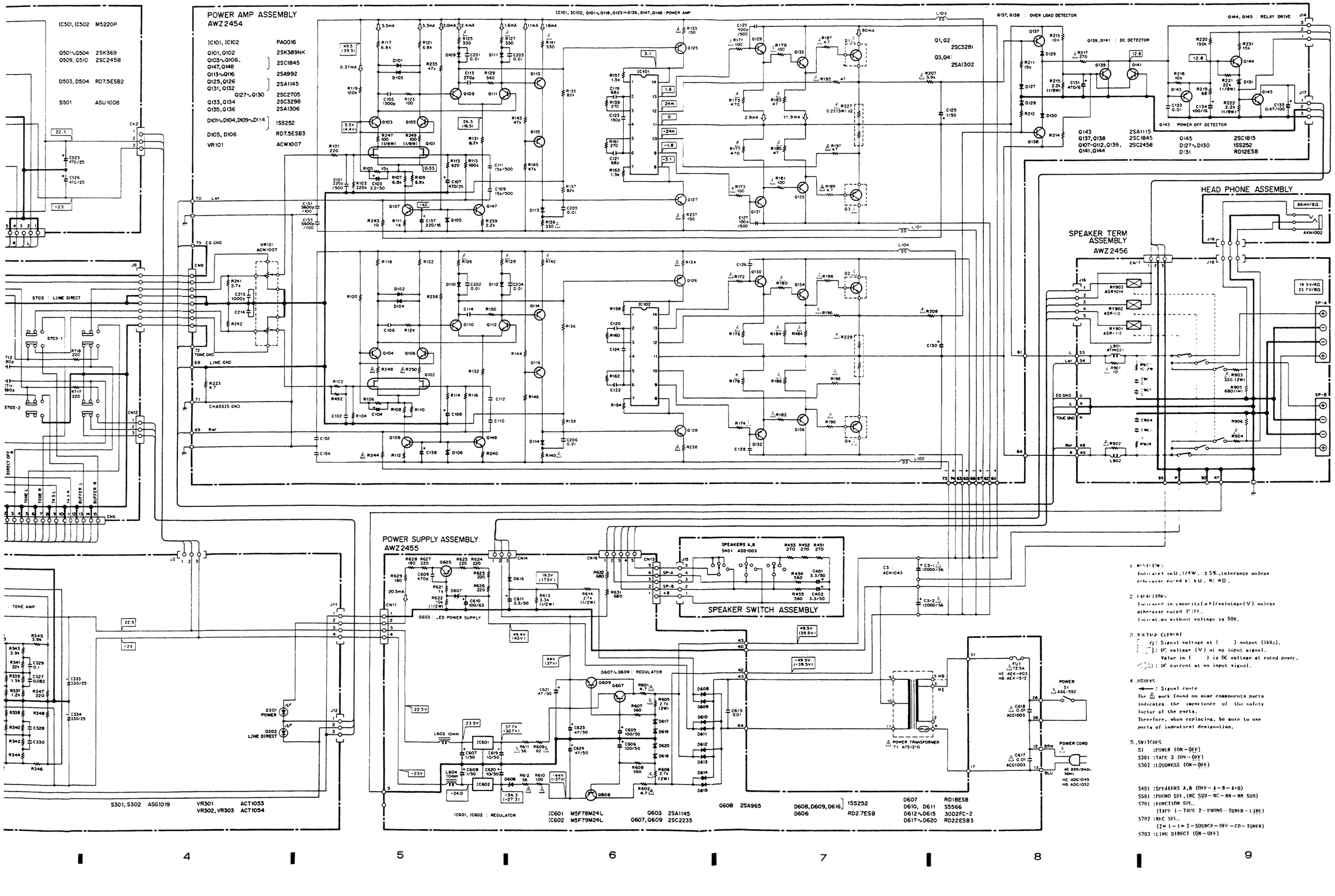
Mark	Symbol & Description	Part No.		Remarks
		AWZ2337	AWZ2456	
	C905–C908	CQMXA472J100	.....	
	C909,C910	CCDSL101K500	.....	
	R901,R902	RS1LMF101J	RS1LMF100J	
	R905,R906	.....	RS1PMF681J	

PHONO AMP assembly (AWZ2457)

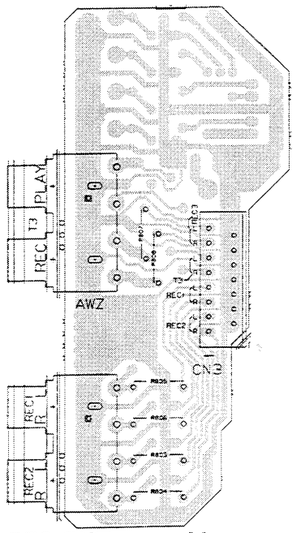
The PHONO AMP assembly (AWZ2457) is the same as the PHONO AMP assembly (AWZ2338) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ2338	AWZ2457	
	L501,L502 (560μH)	ATH1024	.....	
	L503,L504 (2.2μH)	LAU2R2M	.....	
	C505,C506	CCCSL221J50	CCCSL271J50	
	C523,C524	CCCSL390J50	.....	
	R505,R506	RD1/8PM472J	.....	

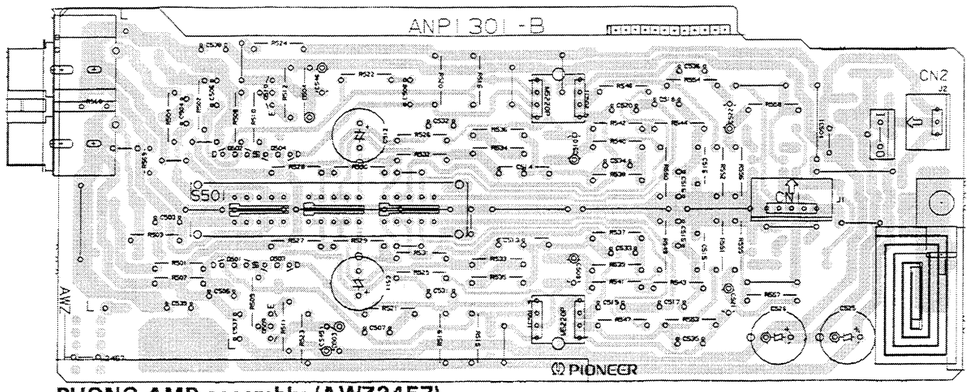
5.2 SCHEMATIC DIAGRAM FOR HE AND HB TYPES


POWER AMP ASSEMBLY
AWZ2454
IC101, IC102 PA0016
Q101, Q102 2SK389NK
Q103~Q106, Q147, Q148 2SC1845
Q113~Q116 2SA992
Q125, Q126 2SA1145
Q131, Q132 2SC2705
Q127~Q130 2SC3298
Q133, Q134 2SA1306
Q135, Q136 2SA1302
D101~D104, D109~D114 1SS252
D105, D106 RD7.5ESB3
VR101 ACW1007
IC101, IC102, Q101~Q118, Q125~Q136, Q147, Q148 : POWER AMP
Q1, Q2: 2SC3281
Q3, Q4: 2SA1302
Q137, Q138 : OVER LOAD DETECTOR
Q139, Q141 : DC DETECTOR
Q144, Q145 : RELAY DRIVE
Q143 : POWER OFF DETECTOR
Q143 2SA1115
Q137, Q138 2SC1845
Q107~Q112, Q139, Q141, Q144 2SC2458
Q145 2SC1815
D127~D130 1SS252
D131 RD12ESB
HEAD PHONE ASSEMBLY
AKN1002
SPEAKER TERM ASSEMBLY
AWZ2456
IC501, IC502 M5220P
Q501~Q504 2SK369
Q509, Q510 2SC2458
D503, D504 RD7.5ESB2
S501 ASU1008
S703 : LINE DIRECT
S703-1
S703-2
TONE AMP
S301, S302 ASG1019
VR301 ACT1053
VR302, VR303 ACT1054
D301 POWER
D302 LINE DIRECT
POWER SUPPLY ASSEMBLY
AWZ2455
Q603 : LED POWER SUPPLY
Q607~Q609 : REGULATOR
IC601, IC602 : REGULATOR
IC601 M5F78M24L
IC602 M5F79M24L
Q603 2SA1145
Q607, Q609 2SC2235
Q608 2SA965
D608, D609, D616 1SS252
D606 RD2.7ESB
D607 RD18ESB
D610, D611 S5566
D612~D615 30D2FC-2
D617~D620 RD22ESB3
SPEAKERS A,B S401 ASD1003
SPEAKER SWITCH ASSEMBLY
C3 : ACH1043
POWER TRANSFORMER T1 ATS1210
FU1 T2.5A HE AEK-403 HB AEK-512
POWER S1 ASG-552
POWER CORD
AC 220/240V 50Hz
HE ADG1049
HB ADG1052
SP-A
SP-B
1. RESISTORS
Indicated in Ω, 1/4W, ±5%, tolerance unless otherwise noted k: kΩ, M: MΩ.
2. CAPACITORS
Indicated in capacity(μF)/voltage(V) unless otherwise noted P: PF.
Indication without voltage is 50V.
3. VOLTAGE/CURRENT
( ): Signal voltage at ( ) output (1kHz).
[ ]: DC voltage (V) at no input signal.
Value in ( ) is DC voltage at rated power.
<[ ]>: DC current at no input signal.
4. OTHERS
: Signal route
The ⚠ mark found on some components parts indicates the importance of the safety factor of the parts.
Therefore, when replacing, be sure to use parts of indentical designation.
5. SWITCHES
S1 :POWER (ON-OFF)
S301 :TAPE 3 (ON-OFF)
S302 :LOUDNESS (ON-OFF)
S401 :SPEAKERS A,B (OFF-A-B-A+B)
S501 :PHONO SEL. (MC SUB-MC-MM-MM SUB)
S701 :FUNCTION SEL.
(TAPE 1-TAPE 2-PHONO-TUNER-LINE)
S702 :REC SEL.
(2→1-1→2-SOURCE-OFF-CD-TUNER)
S703 :LINE DIRECT (ON-OFF)

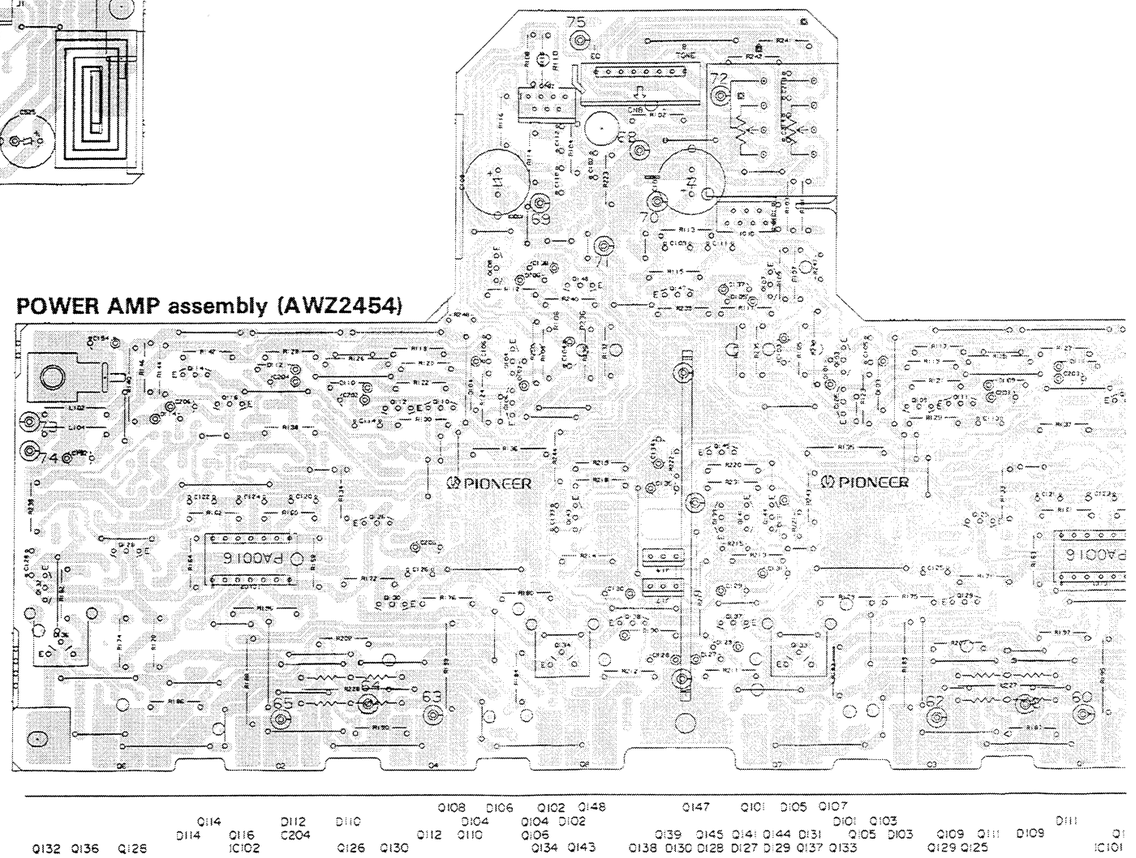
5.3 P.C.BOARD PATTERNS



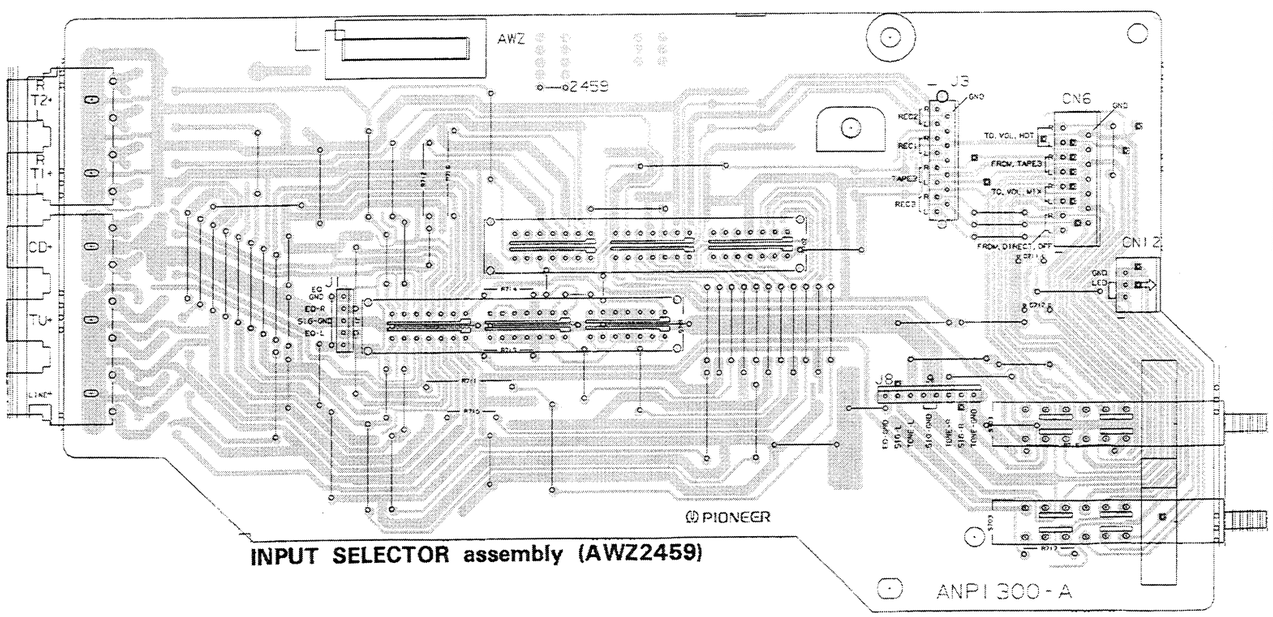
REC OUT assembly



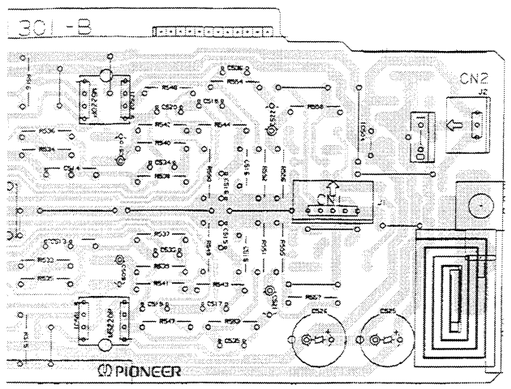
PHONO AMP assembly (AWZ2457)

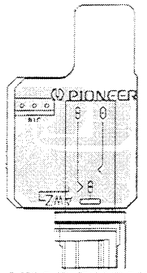


POWER AMP assembly (AWZ2454)

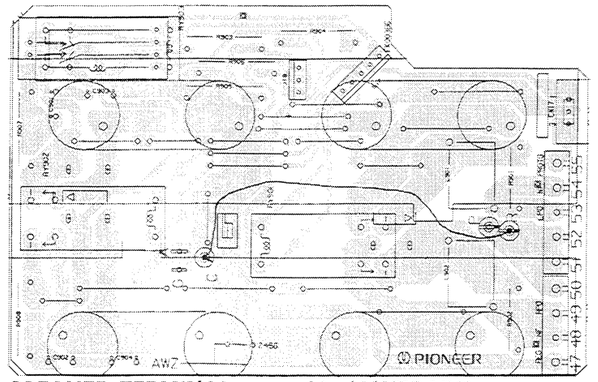


INPUT SELECTOR assembly (AWZ2459)



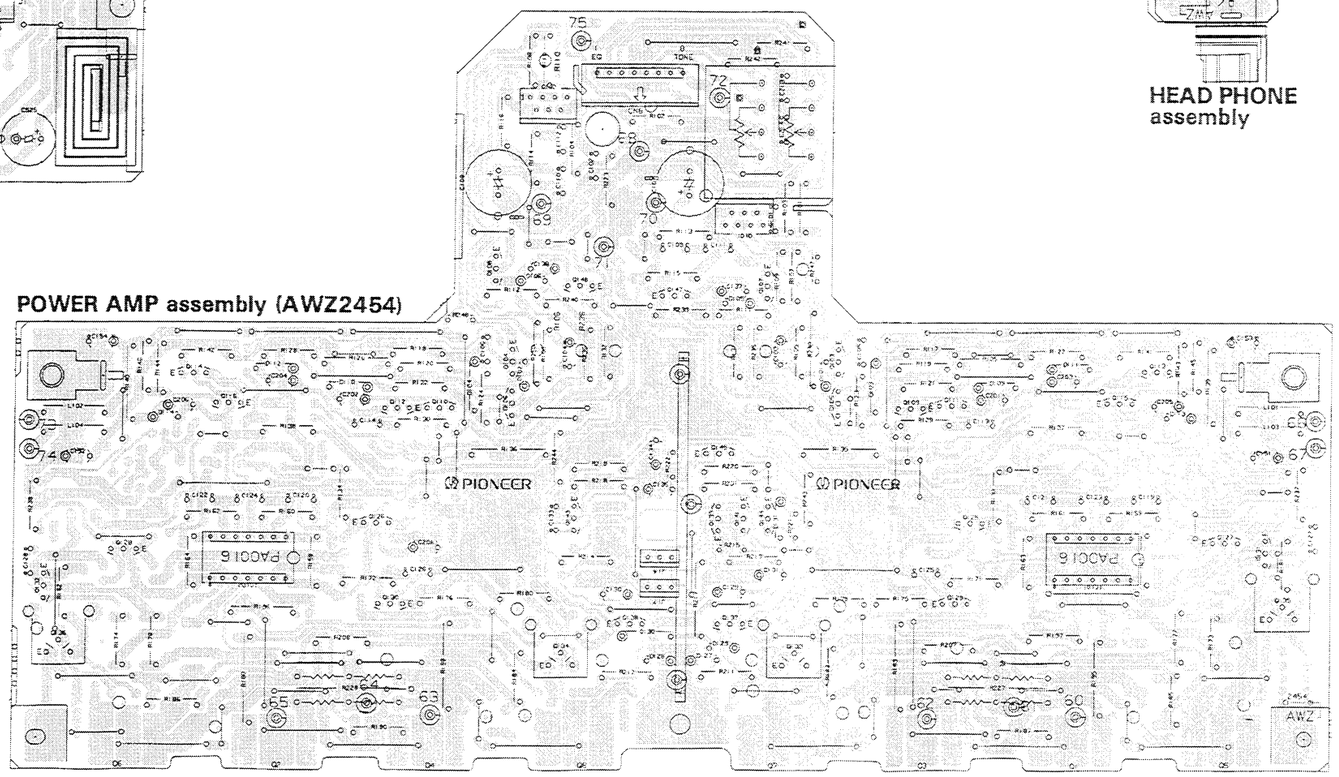


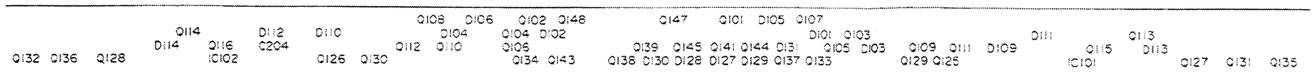
HEAD PHONE assembly

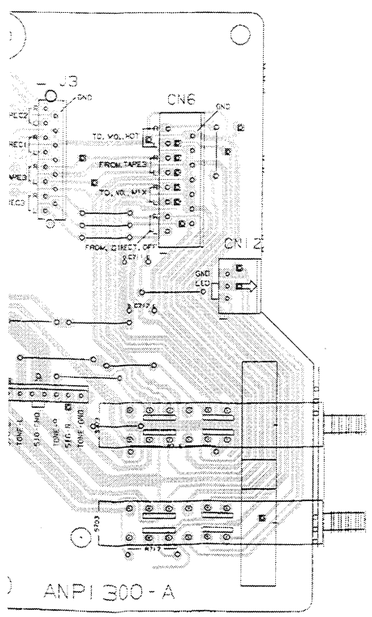


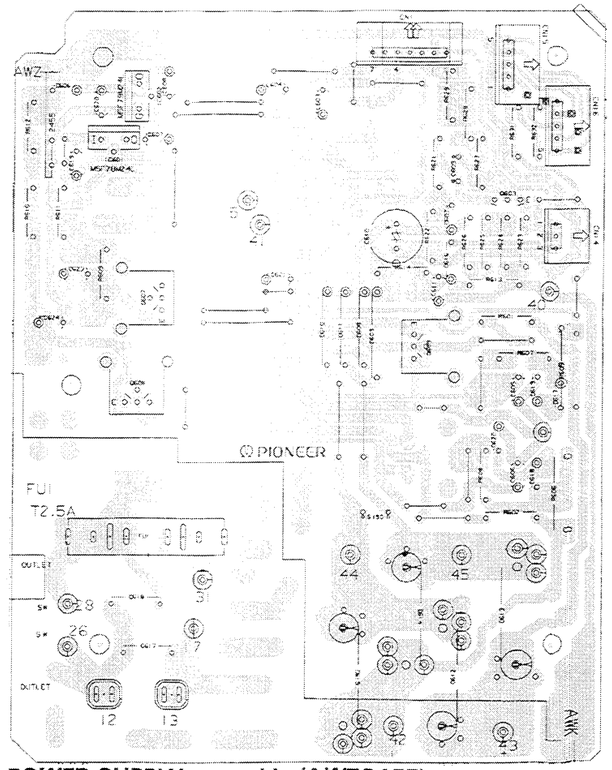
SPEAKER TERMINAL assembly (AWZ2456)

POWER AMP assembly (AWZ2454)

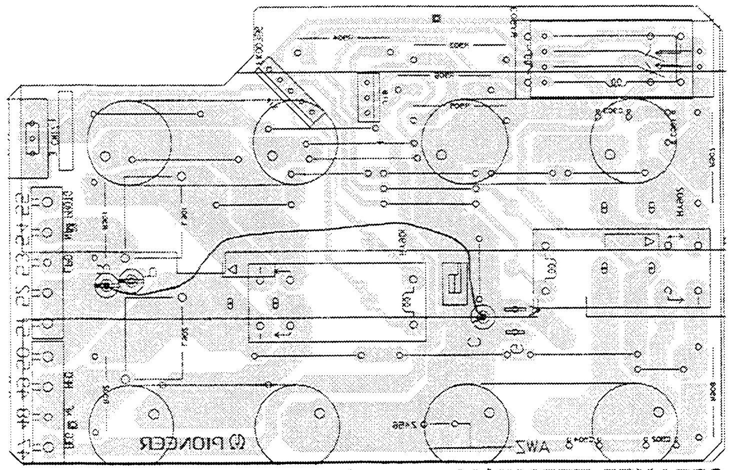




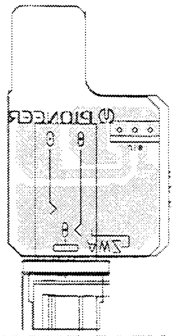




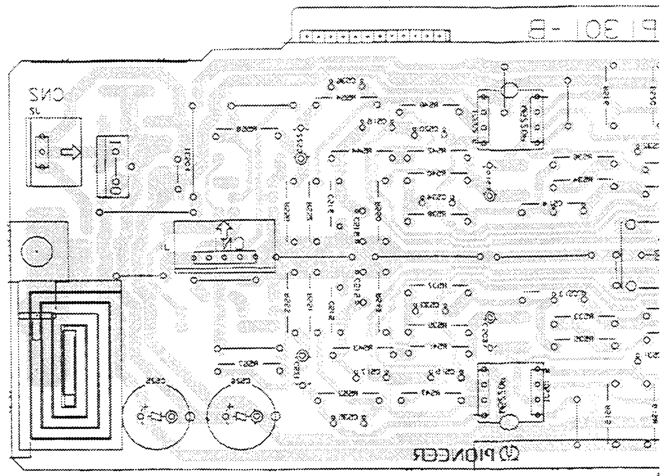
POWER SUPPLY assembly (AWZ2455)

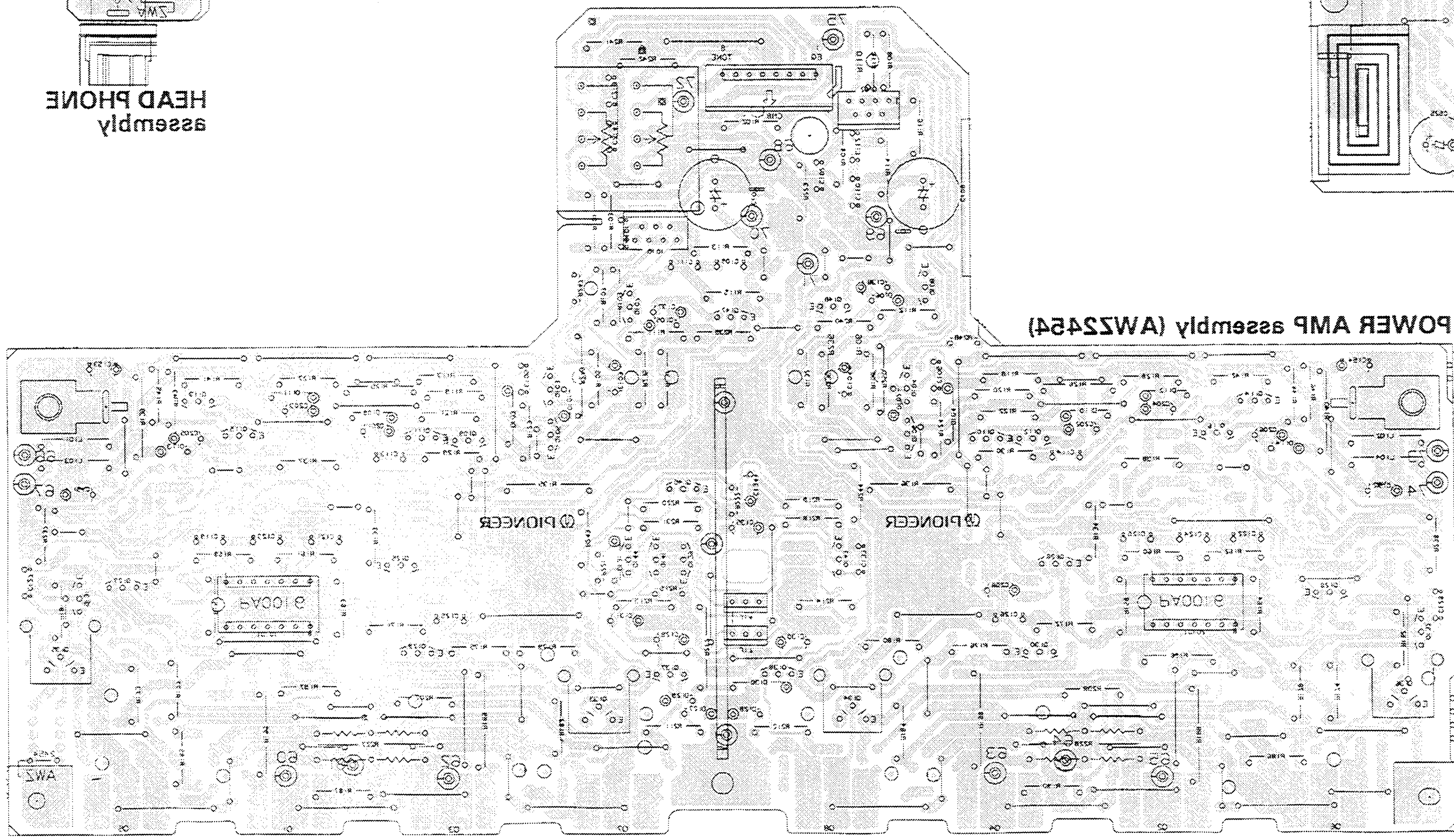


SPEAKER TERMINAL assembly (AWZ2456)

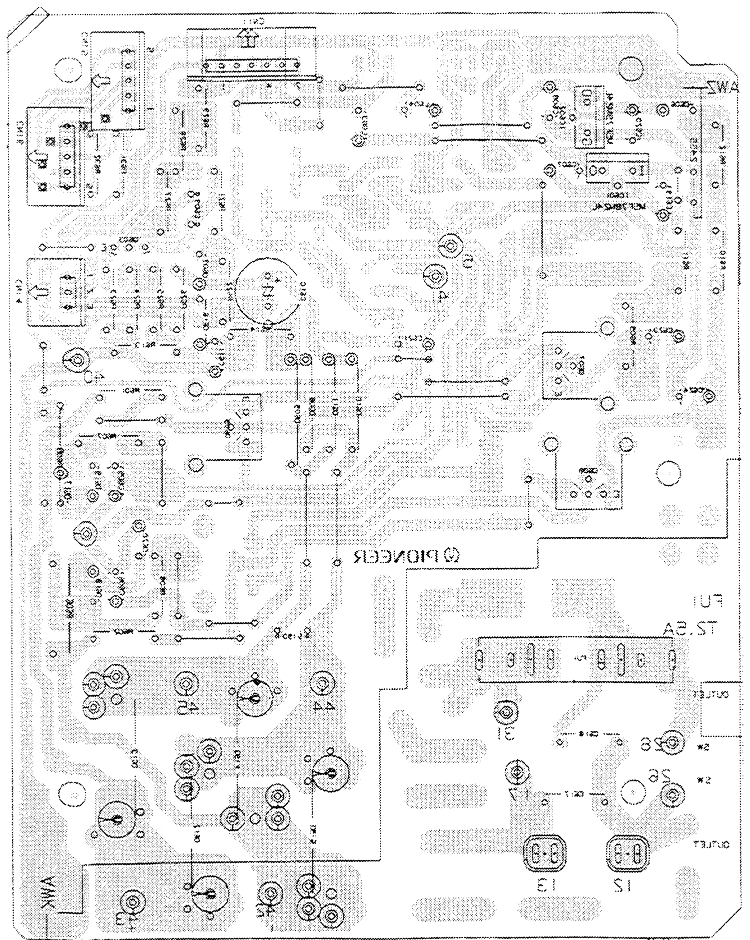


HEAD PHONE assembly

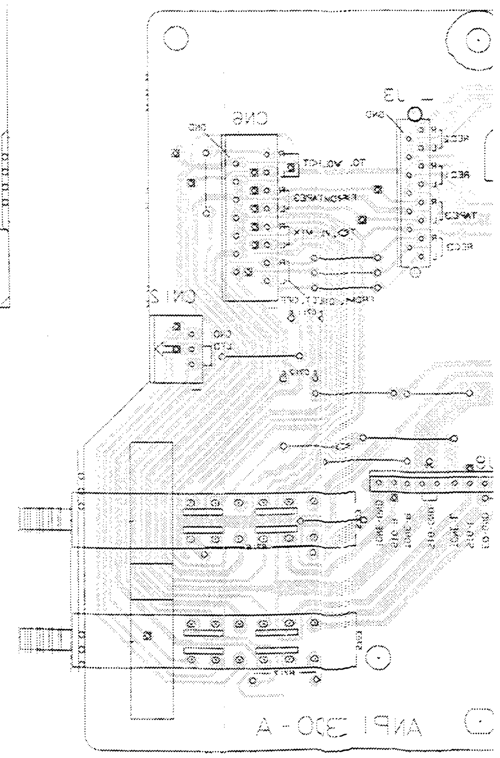




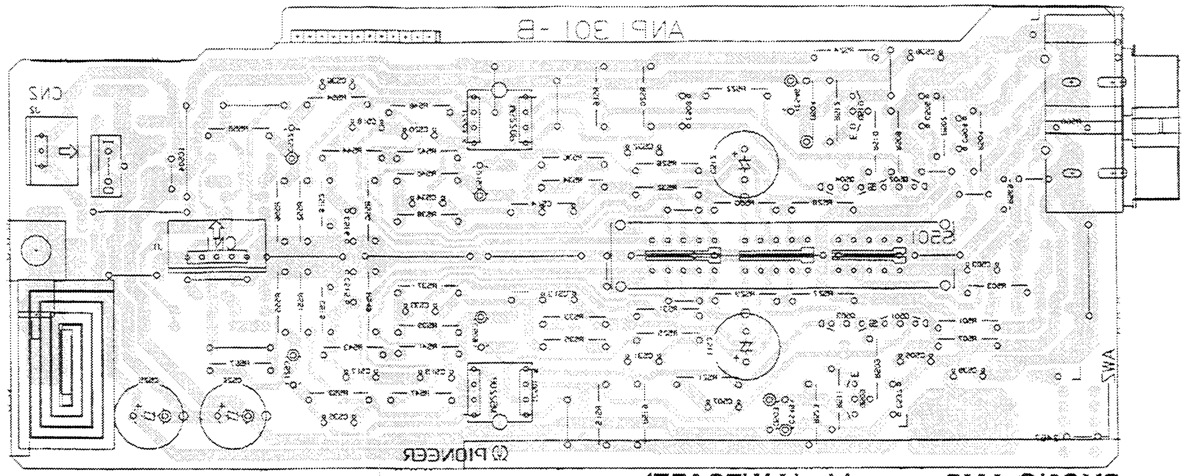
POWER AMP assembly (AWZ2454)



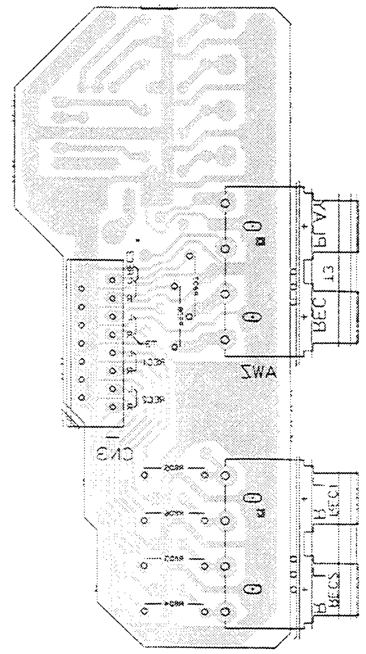
POWER SUPPLY assembly (AWZ2455)



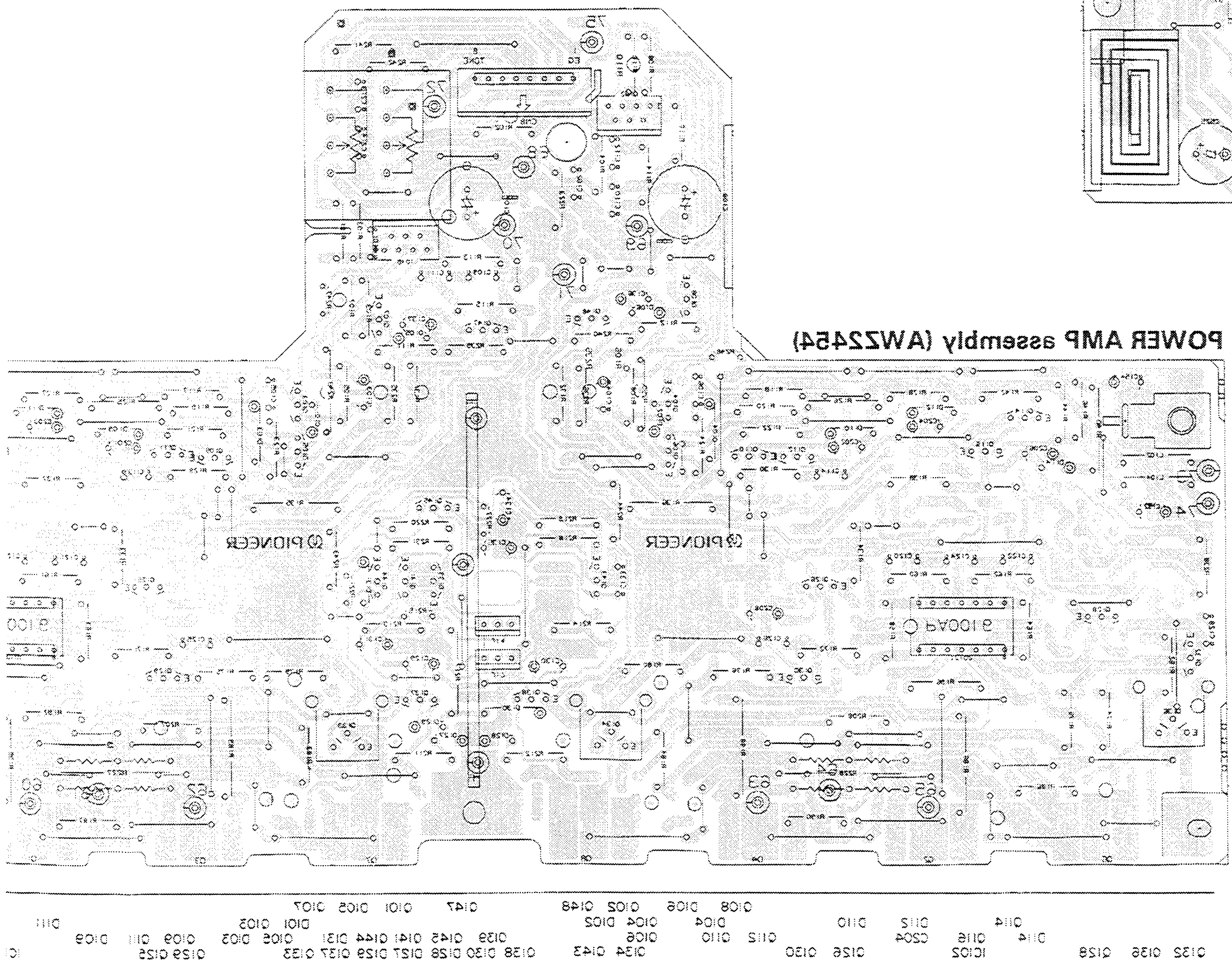
NOTE:
This picture shows the foil side of the printed circuit.



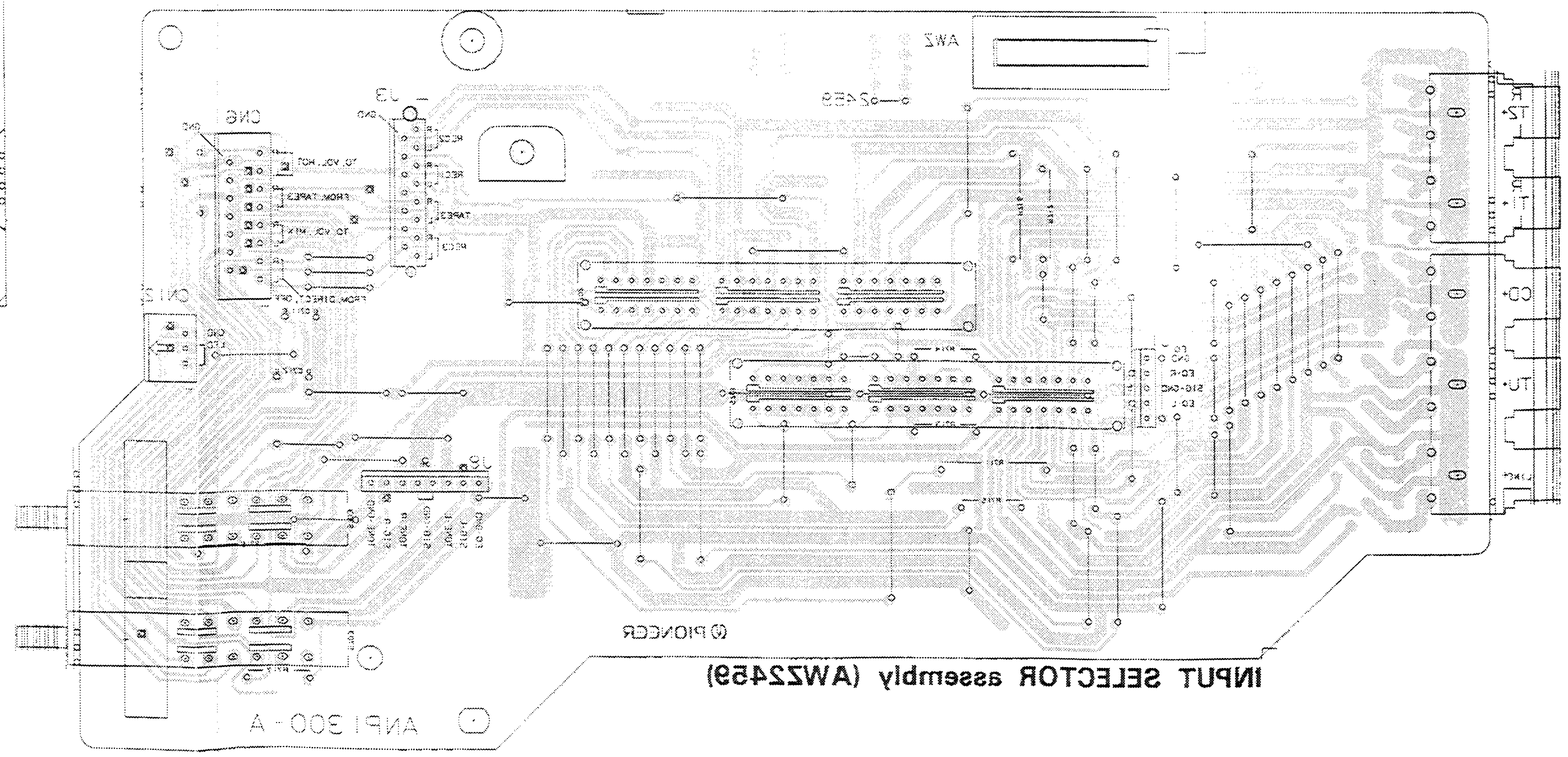
PHONO AMP assembly (AWZ2457)



REC OUT assembly



POWER AMP assembly (AWZ2454)



INPUT SELECTOR assembly (AWZ2459)

6. PANEL FACILITIES

The illustration shows model A-757.
Model A-656 is not equipped ⑦ and ⑬.

L'illustration montre le modèle A-757.
Le modèle A-656 n'est pas équipé des éléments ⑦ et ⑬.

Die Abbilidung zeigt Modell A-757.
Modell A-656 ist nicht mit Bedienelementen ⑦ und ⑬ ausgestattet.

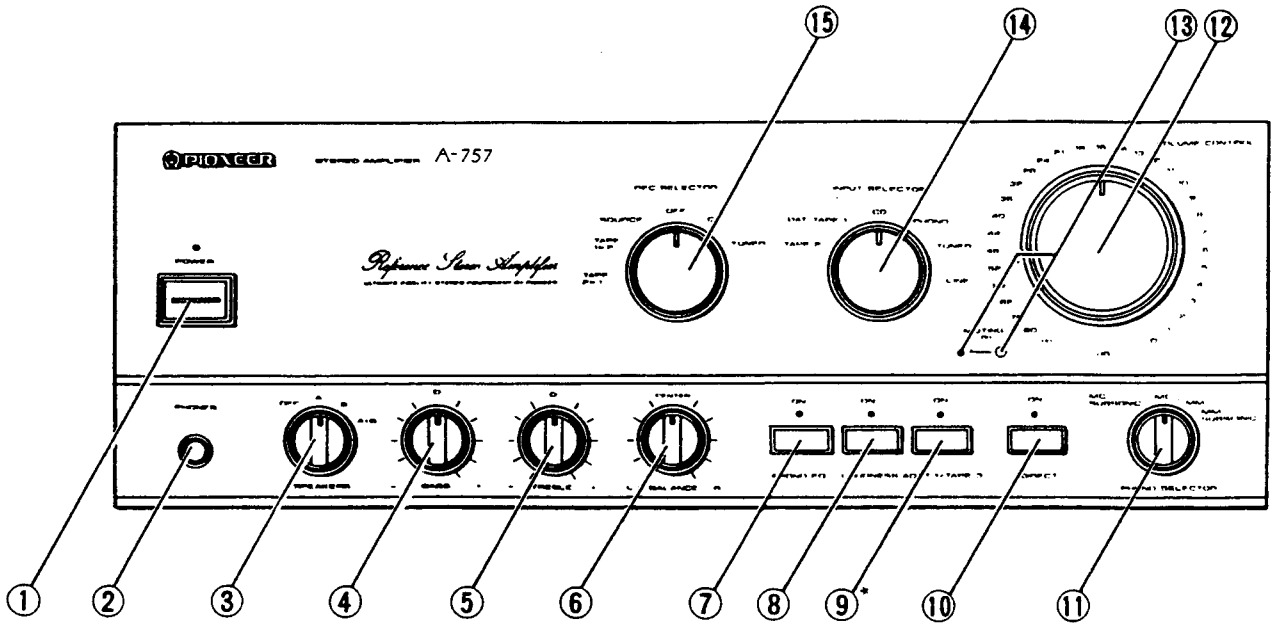
Il modello nell'illustrazione é l' A-757.
Il modello A-656 non possiede i No. ⑦ e ⑬.

De afbeelding toont model A-757.
Model A-656 is niet uitgerust met de bedieningsorganen ⑦ en ⑬.

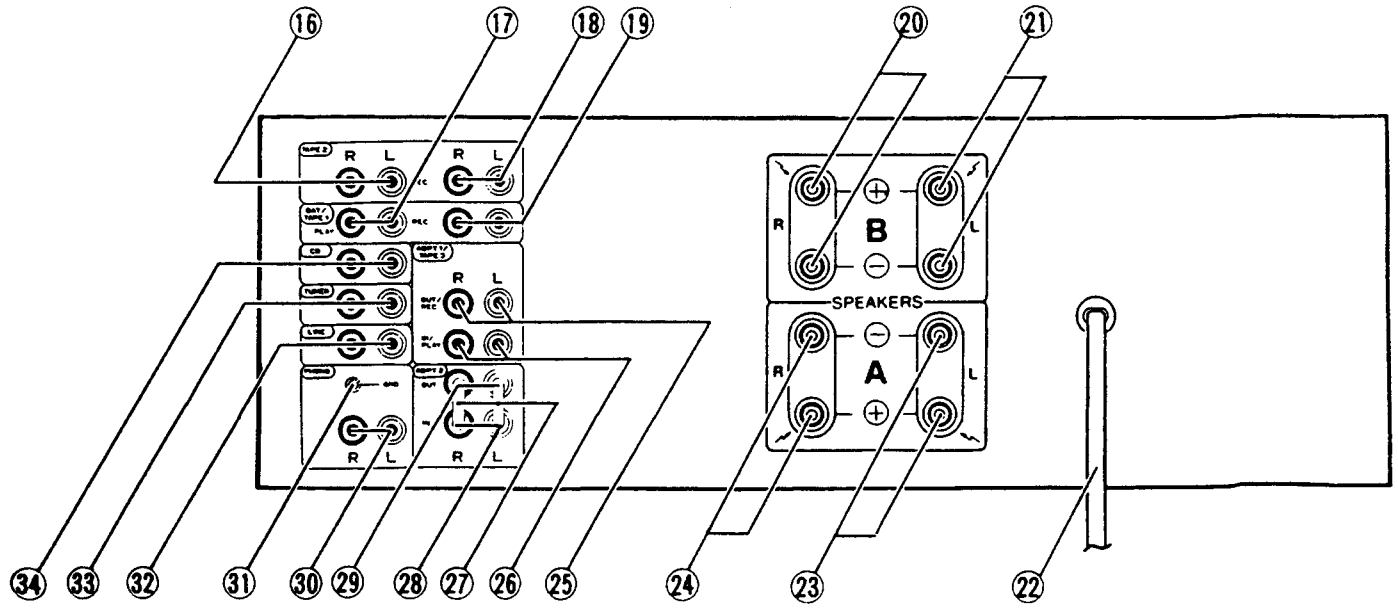
På bildeln visas modell A-757.
Modell A-656 saknar ⑦ och ⑬.

Il modello nell'illustrazione è l' A-757.
Il modello A-656 non possiede i No. ⑦ e ⑬.

Esta ilustração mostra o modelo A-757.
O modelo A-656 não possui os recursos ⑦ e ⑬.



* A-656...ADPT/TAPE 3
A-757...ADPT 1/TAPE 3



[FRONT PANEL]

① POWER switch/indicator

Press to turn power to the unit ON and OFF.
When the power is ON, indicator lights.

② PHONES jack

When using headphones, insert the plug into this jack.

③ SPEAKERS selector switch

Use this switch to listen to the speaker systems connected to the SPEAKERS terminals.

OFF:

Released position: No sound is heard from the speaker system.
Set to this position when listening with headphones.

A:

For reproduction of sound with the speaker systems connected to the SPEAKERS A terminals.

B:

For reproduction of sound with the speaker systems connected to the SPEAKERS B terminals.

A + B:

For reproduction of sound with the speaker systems connected to SPEAKERS A and B terminals.

④ BASS tone control

Use to adjust the low-frequency tone at low volume level. The center position is the flat (normal) position. When turned to the right, low-frequency tones are emphasized; when turned to the left, low-frequency tones are de-emphasized.

NOTE:
This function does not operate when the DIRECT switch is in the ON position.

⑤ TREBLE tone control

Use to adjust the high-frequency tone at low volume level.
The center position is the flat (normal) position. When turned to the right, high-frequency tones are emphasized; when turned to the left, high-frequency tones are de-emphasized.

NOTE:
This function does not operate when the DIRECT switch is in the ON position.

⑥ BALANCE control

Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers. If the right side is louder, turn toward the LEFT position and if the left side is louder, turn toward the RIGHT position.

NOTE:
This function does not operate when the DIRECT switch is in the ON position.

⑦ PHONO EQ switch/indicator (A-757 only)

When not using a phono input, turn the phono equalizer power circuit off in order to prevent it from collecting noise during playback of other sources.

ON:

The indicator lights: Always set to this position when using a phono input. Immediately after turning ON, audio signal will be muted for several seconds until circuit operation becomes stable.

OFF:

The indicator goes off: Set to this position when not using a phono input.

⑧ LOUDNESS switch/indicator

Use when listening at low volume levels.

ON:

The indicator lights: Boosts low and high frequencies to give added punch to playback even at low-volume.

OFF:

The indicator goes off: Should normally be left in this position.

NOTE:
This switch does not operate when the DIRECT switch is in the ON position.

⑨ ADPT 1/TAPE 3 switch/indicator (ADPT/TAPE 3 switch in the A-656)

Use this switch to listen to tape playback, or to listen to the sounds being recorded during tape recording.

ON:

The indicator lights: Press when listening to the playback sound of the tape deck or the adaptor connected to the ADPT 1/TAPE 3 IN/PLAY terminals, or to monitor the sound being recorded on the tape deck connected to the ADPT 1/TAPE 3 OUT/REC terminals.

OFF:

The indicator goes off: Normally leave the switch in this position.

NOTE:
When the DIRECT switch is set to ON, this function does not operate and no signal is output at the ADPT 1/TAPE 3 OUT/REC terminals.

⑩ DIRECT switch/indicator

Use this switch when you do not wish to pass the output from input terminal equipment through the various frequency adjusting circuits and adaptor terminals (ADPT 1/TAPE 3, ADPT 2, BASS, TREBLE, BALANCE, LOUDNESS).

ON:

When the switch is in this position, the indicator lights and the signals input from the input terminals are reproduced without passing through the various frequency-adjusting circuits. This results in flat, pure sound which is a more faithful reproduction of the input source.

OFF:

When the switch is in this position the indicator goes out and the signal passes through the various frequency adjusting circuits.

⑪ PHONO SELECTOR switch

Set in accordance with the type of cartridge used in you turntable.

MM:

Set to this position when using a moving magnet cartridge, or a MC (moving coil) cartridge with high output of 1 mV or more.

MC:

Set to this position when using a moving coil cartridge.

MM SUBSONIC/MC SUBSONIC:

Subsonic filter for moving coil or moving magnet cartridges to cut ultralow frequency noise less than 17 Hz generated when playing a warped record.

When using a high-output moving coil cartridge, set this switch to MM or MM SUBSONIC.

⑫ VOLUME CONTROL

Use to adjust volume level.

NOTE:
This unit is equipped with a circuit that attenuates the effect of tone and loudness controls at volume is turned up.

⑬ MUTING switch/indicator (A-757 only)

Use to temporarily cut sound volume.

ON:

The indicator lights. The sound volume will be cut off.

OFF:

The indicator goes off. The sound will return to its previous volume.

⑭ INPUT SELECTOR switch

Use to select playback source.

LINE:

Set to this position when listening to the programs from a component connected to the LINE terminals.

TUNER:

Set to this position when listening to AM or FM broadcasts with a tuner.

PHONO:

Set to this position when listening to record playback on a turntable.

CD:

Set to this position when listening to a compact disc playback with a CD player.

DAT/TAPE 1:

For playback with a tape deck or digital audio tape deck connected to the DAT/TAPE 1 terminals.

TAPE 2:

For playback with a tape deck connected to the TAPE 2 terminals.

⑮ REC SELECTOR switch

Switch to select recording signal. When set at other than SOURCE or OFF position, signals can be recorded during playback of the equipment selected by INPUT SELECTOR switch.

TUNER:

To record from a TUNER.

CD:

To record from a CD player.

OFF:

In this position nothing from the REC terminals of DAT/TAPE 1 and TAPE 2 will be output. Select it when not recording; output to tape decks will be disconnected, improving sound quality.

SOURCE:

To record the equipment selected by INPUT SELECTOR switch.

TAPE:

1 ▶ 2

To record (copy) from the tape deck of DAT/TAPE 1 terminals, over to the tape deck of TAPE 2 terminals.

2 ▶ 1

To record (copy) from the tape deck of TAPE 2 terminals, over to the tape deck of DAT/TAPE 1 terminals.

NOTE:
The REC SELECTOR switch has no effect on the recording out put of the ADPT 1/TAPE 3 terminals.

[REAR PANEL]

⑯ TAPE 2 PLAY terminals.
⑰ DAT/TAPE 1 PLAY terminals.
⑱ TAPE 2 REC terminals.
⑲ DAT/TAPE 1 REC terminals.
⑳ SPEAKERS B terminals (right channel).
㉑ SPEAKERS B terminals (left channel).
㉒ Power cord.

Connect this cord to an AC wall socket, or the AC outlet of an audio timer.

㉓ SPEAKERS A terminals (left channel).
㉔ SPEAKERS A terminals (right channel).
㉕ ADPT 1/TAPE 3 OUT/REC terminals.
ADPT/TAPE 3 OUT/REC terminals. (A-656 only).
㉖ ADPT 1/TAPE 3 IN/PLAY terminals.
ADPT/TAPE 3 IN/PLAY terminals. (A-656 only).
㉗ Shorting bars. (A-757 only).
㉘ ADPT 2 IN terminals. (A-757 only).
㉙ ADPT 2 OUT terminals. (A-757 only).
㉚ PHONO terminals.
㉛ Turntable ground terminal (GND).
㉜ LINE terminals.
㉝ TUNER terminals.
㉞ CD terminals.

7. SPECIFICASIONS

[A-656]

Continuous power output (both channels driven at 20 Hz to 20 kHz) **
- T.H.D. 0.005%, 8 Ω ····· 70W + 70W *
- T.H.D. 0.008%, 4 Ω ····· 95W + 95W *

DIN continuous power output (both channels driven)
- 1 kHz, T.H.D. 1%, 8 Ω ····· 80W + 80W
- 1 kHz, T.H.D. 1%, 4 Ω ····· 120W + 120W

Power bandwidth
- 0.05%, 8 Ω ····· 5 Hz – 80 kHz *

Damping factor
- (1 kHz/20 Hz to 20 kHz), 8 Ω ····· 200/70

Dynamic power output (on EIA dynamic test signal)
- 4 Ω /2 Ω ····· 150W/190W

Total harmonic distortion **
- 20 Hz to 20 kHz, 70W, 8 Ω ····· 0.005% *
- 20 Hz to 20 kHz, 95W, 4 Ω ····· 0.008% *

Inter-modulation distortion (at rated output) ····· 0.005% *

Input sensitivity/impedance
- PHONO (MM) ····· 2.5 mV/50 k Ω
- PHONO (MC) ····· 0.2 mV/100 Ω
- CD, TUNER, LINE, TAPE ····· 150 mV/50 k Ω

PHONO overload level
- 1 kHz, T.H.D. 0.008% (MM/MC) ····· 200 mV/19 mV

Output level/impedance
- TAPE REC ····· 150 mV/2.2 k Ω

Frequency response
- PHONO (MM), 20 Hz to 20 kHz ····· ± 0.2 dB
- PHONO (MC), 20 Hz to 20 kHz ····· ± 0.3 dB
- CD, TUNER, LINE, TAPE (1 Hz to 150 kHz) ····· $^{+0}_{-3}$ dB *

Tone control (volume control set at –40 dB position)
- BASS ····· ± 8 dB (100 Hz)
- TREBLE ····· ± 8 dB (10 kHz)

Loudness contour (volume control set at –40 dB position)
····· +5 dB (100 Hz)/+3 dB (10 kHz)

Filter (SUBSONIC) ····· 17 Hz (12 dB/oct.)

Signal-to-Noise ratio (IHF short circuit, A network)
- PHONO (MM, 5 mV input/MC, 0.5 mV input) ··· 95 dB/77 dB *
- CD, TUNER, LINE, TAPE ····· 110 dB *

Signal-to-Noise ratio (DIN, continuous power/50 mW)
- PHONO (MM) ····· 74 dB/65 dB *
- CD, TUNER, LINE, TAPE ····· 92 dB/68 dB *

Power Supply/Miscellaneous

Power requirements ····· a.c.220 Volts ~, 50/60 Hz
Power consumption ····· 650W
Dimensions ····· 420 (W) × 435 (D) × 162 (H) mm
Weight (without package) ····· 13.5 kg

Accessories

Operating instructions ····· 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

* Measured with the DIRECT switch set to ON.
** Measured by Audio Spectrum Analyzer.